

ANGLIA RUSKIN UNIVERSITY

MASCULINITY AND GEAR FETISHISM IN AUDIO
TECHNOLOGY COMMUNITY DISCOURSE

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ANGLIA RUSKIN UNIVERSITY
ABSTRACT

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This thesis is a study of audio technology community discourse and its historical features. I contend that the audio technology domain is fundamentally exclusive and hierarchically stratified, based on discursively inscribed prerequisites to participation and enunciation, notably a hegemonic masculine performance, gear fetishism and the articulation of technical knowledge. I show that communities organised around audio technology, socially construct and perpetuate these features as components of their respective discourses. I expose all three elements to be rooted in culturally embedded gender stereotypes, dating back to a nineteenth century dichotomy of public and private space.

I present a deconstruction of the complex discursive performances of masculinity and offer opportunities for privileged masculine recordists to critically reflect upon their dominance and homogeneity within the domain as an original contribution to knowledge. In this endeavour, I investigate the emergence and development of exclusive tropes as components of audio technology culture, and demonstrate how they continue to be perpetuated in the face of both social and technological developments that offer possibilities to destratify the community hierarchy and enunciative function.

My methodology is based on a comparative discourse analysis of industry and academic texts, as well as the communities that surround and influence the construction of modern audio technology discourse. Case studies are conducted of two leading industry publications: *Tape Op* and *Sound On Sound*, and supplemented by an exploration of Women's Audio Mission. I combine these sources with interview material gathered from relevant industry professionals. In doing so, I observe how the audio technology community has maintained barriers to participation, often in the face of technological progress that offers supposed opportunities for democratisation. My work presents an argument against this notion, exposing the supposed democratisation as an illusion of accessibility and thus as mere massification.

Key words: audio technology, discourse, masculinity, gear fetishism, gender

Table of Contents

Chapter One: Introduction	1
1.1 Key Terminology	4
1.2 Phallogocentrism and Objectification	8
1.3 Research Questions	10
1.4 Chapter Summaries	12
Chapter Two: Literature Review	16
2.1 Situating the Work	20
2.2 Underpinning Theories of Commodity Production and Consumption	22
2.3 Social Construction of Technology Studies	26
2.4 Commonality and the Democratic Potential of Audio Tools	30
2.5 Navigating Discursive Bias	34
2.6 Recording Practices	39
2.7 Cumulative Technological Design	48
2.8 Conclusion	54
Chapter Three: Exclusivity In Print Media Discourse	56
3.1 Democratisation	59
3.2 Gender and SCOTS Analytic Devices	61
3.3 The Public/Private Divide	64
3.4 Audio Technologies and Print Media Discourse	67
3.5 Conclusion	76
Chapter Four: Comparative Discourse Analysis of Tape Op Magazine	77
4.1 Foucault and The Archaeology of Knowledge	81
4.2 Tape Op Magazine and the Rhizome	86
4.3 A Rhizomatic Form?	96
4.4 Masculinity	107
4.5 Conclusion	114
Chapter Five: Comparative Discourse Analysis of Sound On Sound	116
5.1 Sound On Sound Overview	117
5.2 Gear Fetishism	120
5.3 Exclusion and Democratisation	135
5.4 Conclusion	144
Chapter Six: Masculinity and the Reinscription of Diversity	146
6.1 Hegemonic Masculinities and Exclusion	147
6.2 Masculinity and Class	155
6.3 Container Technologies	157
6.4 Masculinity in Crisis	159
6.5 Women's Audio Mission	165
6.6 Conclusion	180
Chapter Seven: Conclusion	183
7.1 Responding to the Research Questions	185
7.2 Future Research	188
Bibliography	190
Appendix A	216
Appendix B	224
Appendix C	226
Appendix D	229

Chapter One: Introduction

In the engineering, recording, mixing, mastering and general production practices of popular music, audio or sound engineers are imbued with a great deal of power. This power is, I argue, both attained and wielded through a complex, discursive system of enunciation and mediation that privileges masculine authority over all other participants. In this work, I engage with these discursive systems and tell the story of men's largely exclusive and dominant involvement in the audio technology domain and its associated communities.

Audio technologies themselves are considered as artifacts that facilitate the recording and reproduction of sound in some capacity, a definition that accommodates a broad range of devices. Within the context of this thesis, however, audio technologies are explicitly tied to their use within specific communities, all of which are concerned with the engineering and production of sound in a music recording studio context. This context encompasses any and all spaces that include hobbyist and professional recording devices, be it a bedroom or a commercial facility, that are used in the creation of music.

Trevor Pinch and Karin Bijsterveld have recognised that 'whole areas of music technology ... remain completely uncharted' (2004: 636). Following this notion, I contend that audio technology community discourse remains a largely unexplored academic territory. Whilst a discussion of gendered participation within the music industry overall has been well documented (Armstrong 2003; Thompson 2002; Sandstrom 2000; Bayton 1997; Cohen 1997; Whiteley 1997; Keightley 1996; Citron 1990) and serves as a firm foundation for additional studies such as my own, there are comparatively few studies of gender with respect to audio technology, and even fewer concerned with community discourse and masculinity specifically. The existing literature that examines the juncture of audio technology, discourse and gender provides a wealth of material concerned with public and private spaces, institutional sexism, access to technology, the gendered social construction of technological artifacts, and masculine performative attributes such as gear fetishism and technical knowledge. By extending these studies and aligning their findings with investigative methodologies and theories such as genderscript (van Oost 2005: 194-196), phallogocentrism (Derrida 2001; Haraway 1991; Butler 1990), and detailed 'archive' analysis (Foucault 1997: 129), it will become clear that I contribute

new insights to these areas due to my focus on deconstructing the hegemonic masculine subject.

On this point, the recent work of Kelly Heward (2009), Marie Smith (2009) and Alice Tomaz de Carvalho (2012) were invaluable in my own study, as they directly connect masculine dominance with a restricted model of community participation, albeit in a somewhat limited capacity. In particular, these studies account for the numerous constraints placed upon women audio engineers (as an example of masculine-deviant community participants) involved within the audio technology domain, and furthermore, how they negotiate these constraints with respect to the concepts I identify. Principally gear fetishism and a hegemonic masculine performance. The nuances of these negotiations are expanded upon in the chapters that follow, where I pay particular attention to masculine dominance as an inhibiting factor to participation, as well as participant objectification within a simplistic subject/object dichotomy. The work of Tara Rodgers (2010a) has done much to catalogue this form of masculine dominance by using women's voices exclusively, and thus was also of critical importance as a source. Rodgers explores the discourses through which women make sense of their own working practices within the context of electronic music production as a male dominated arena. This work informs my own, in that I explore how masculinity is socially constructed and often wielded as a means of asserting power and control in associated audio communities. In highlighting this implicit discursive practice, I provide examples of deconstructing one's dominant position in audio technology communities as an original contribution to knowledge.

It should be noted here that in discussing masculinity, I am concerned with gender rather than a biologically essentialist concept of sex. Participation within audio community discourse is, I contend, limited to a performance of masculinity and thus rejects all deviant performances or enunciations, regardless of one's chosen or perceived gender identity. Masculinity forms the central focus of this thesis, rather than a detailed investigation into the exclusion of women or other masculine-deviant gender identities in particular. Studies such as that of Marie Smith (2009) have done much ground work in exploring how women are ostracised and discriminated against within audio technology communities. In particular, her work has drawn attention to the fallacy of 'choice' with respect to entering audio technology communities, and lays stress on the difficulties female practitioners face when attempting to enter a male dominated domain (2009: 124). I extend this work

and argue that it is not the sole responsibility of the objectified participants to 'fight' against the dominant, hegemonic subject and so (re)claim material and discursive space through the extension of the 'feminist intervention in [audio technology] historiography' (Rodgers 2010a: 2). I suggest, rather, that dominant, masculine participants should equally critically engage with their own discourse and practices as subjects, those who objectify and exist only in relation to the object. Through a deconstruction of this masculine subject, it becomes possible to enact the 'antiprogram' following the work of Akrich and Latour (1992: 261) and re-inscribe the discourse of the audio domain to facilitate greater inclusivity. This is achieved by challenging the dominant enunciative function and facilitating 'rupture' following the work of Deleuze and Guattari (2011).

Due to the work's fundamentally interdisciplinary focus, I have positioned my thesis within the field of sound studies. As Jonathan Sterne has suggested, this field 'reaches across registers, moments and spaces, and it thinks across disciplines and traditions, some that have long been considered sound, and some that have not done so until more recently. Sound studies is academic, but it can move beyond the university' (Sterne 2012: 2). He goes on to suggest that:

'A broad transdisciplinary curiosity and an awareness of partiality - even when it is paired with great speculative ambition - are the most important defining characteristic differences between people who think of themselves as sound students, and people who think of themselves as sound scientists, sound artists, sound engineers ... the list could go on ... But the difference between sound studies and these other fields is that they don't *require* engagement with alternative epistemologies, methods or approaches' (Sterne 2012: 4).

The approach taken in this work can therefore be described as largely interdisciplinary, drawing on a number of fields in order to explore audio domain participation. I investigate theories of social construction of technology studies (SCOTS) (Bijker and Pinch 2012; Oudshoorn and Pinch 2005; Pinch and Bijsterveld 2004; Mackay et al. 2000; Akrich and Latour 1992; Woolgar 1991), masculinity studies (Beynon 2002; Mangan 2000; Edwards 1997; Mort 1996; Horrocks 1995; Cornwall and Lindisfarne 1994; Roper 1991), as well as texts from sound theory, the Art of Record Production forum, and commercial print media texts supplemented with contemporary interview material. In doing so, this thesis establishes points of connection and reflection between these often disparate texts in order to

deconstruct what I contend to be an oversimplification of a gendered division of participation within the audio technology domain.

The ultimate purpose of this work is to explore and deconstruct the dominant, masculine genderscript of audio technology discourse which I argue privileges the participation of a largely homogenous demographic (i.e. the white-middle-class-male audio engineer). It is important to state, at this point, that I myself conform to this limited classification. I can thus be considered to perform an outward appearance of an audio engineer that conforms to the dominant demographic expectations. This study is thus both a deconstruction of the dominant audio domain participants, as well as the rules-of-engagement as it were, that facilitate my own, largely unimpeded, participation within the audio technology domain overall. Before a more detailed deconstruction of this, and other key arguments takes place, it is perhaps useful at this point to clarify some of the key terminology that is deployed within the thesis title and which is subsequently built upon in the individual chapters.

1.1 Key Terminology

Within the context of this work, masculinity, or masculinities, are understood as being 'part of the structure of patriarchy, as ideological constructions that create and consolidate male power over women' (Horrocks 1995: 2). More than this, masculinity is defined as a performance that consists of a series of domain-specific, cultural and behavioural codes that, through enactment, specify the relative inclusion or exclusion of domain participants. Masculinity as a performance is informed by numerous socio-political and socio-cultural factors that function as prerequisites to participation in specific arenas. Within the context of the audio technology domain, I contend that culturally embedded (and perpetuated) gender stereotypes are inextricably linked with perceptions of one's technical competence and abilities, as I illustrate in the following examples. The institutionally embedded masculine performances of the 'handy male labourer' and 'male as breadwinner' that are explored herein, reflect these aforementioned simplistic gender stereotypes and are reinforced as components of discourse through gear fetishism (defined below), 'shop talk', the concept of 'tinkering' (a form of technological appropriation linked in particular to audiophilia (see Stamm 2010; Heward 2009; Morton 2004; Perlman 2004: 794; Horning 2004a: 721; Perlman 2003: 350-352; Horning 2000:

101)), as well as other minor tropes. These discursive features explicitly stress men's competence over and above that of women and other gender identities by effectively perpetuating a model of participation rooted in nineteenth century notions of public and private spaces. To elaborate, these discursive mechanisms draw upon, and reinscribe, the gendered division of labour that typified this divide and so form a 'tidy' dichotomy of difference and dominance, hegemonic and deviant, subject and object (Kegan Gardiner 2002: 23). These binaristic concepts are explored in greater depth in the following chapters. In examining the performances of masculinity within the audio technology domain, I also assess a series of associated masculinities concerned with class, financial means and power. Their collective enactment as components of a localised, domain specific, masculine performance are, I argue, central to a participant's relative visibility or invisibility.

Within the context of this thesis, the discursive trope of gear fetishism is defined as the fetishised stress laid on the acquisition and consumption of a technology (see also Marx 1887 [2015]), over and above its application, be this creative or largely technical. I contend that audio technologies are discursively constructed as commodities that symbolically assert dominance and power within the hierarchically organised audio technology communities explored (Veblen 1899 [1918]). 'Gear' is wielded as a claim to power and thus constitutes what I later describe (drawing on the work of Butler (1990: 18)) as a phallogocentric commodity, in that these artifacts are intrinsically linked to an essentialist masculine performance. I argue that both the tokenised possession, and a discussion of technological artifacts that stresses their consumption, are essential for one to signify as a community participant and thus necessary for one to be rendered visible. I contend that gear fetishism, in being intrinsically linked to a performance of masculinity, renders invisible those who fail to, or choose not to, conform to a dominant masculine genderscript or performance. In defining gear fetishism, it should be noted that I am presenting a term distinct from the localised phrases 'gear lust' or 'G.A.S' (gear acquisition syndrome), which are often articulated as a desire to physically possess a technological commodity and, furthermore, make explicit reference to the addictive potential of the 'Prosumer' audio technology marketplace. 'Gear lust' or 'G.A.S' can then be considered as contributory elements to what I term gear fetishism, which promotes the commodification of audio technology through discourse.

In discussing audio technology and those who use it, I make a clear distinction between (what I refer to as) the audio domain and audio communities. I consider the domain to encapsulate spaces that are somewhat more inclusive of deviant performances and discourses, as the availability of what I term 'massified' artifacts allows for broader accessibility, at the very least in terms of access based on price point. In contrast, audio communities are considered as being largely public in form, in that participants signify their involvement actively, and in doing so, render themselves visible to others in shared, and often public, spaces. It is important to note, however, that all audio domain participants must assume a level of proficiency with respect to discourse in order to understand, or at the very least interpret, the often specialised terminology employed by other participants. They must practice 'domain acquisition' by learning and conforming to not only the language of the domain, but also its associated skills, rules and techniques (Thompson and McIntyre 2013). My definition of community is also informed by what Paul Théberge has termed 'commonality' (1997: 136). He suggests that commonalities such as the possession of relevant equipment, knowledge and modes of interaction are important in relationships that characterise the audio domain. My concept of community explores these very same commonalities in relation to the themes of gear fetishism and masculinity outlined above. I argue that a dominant masculine performance (being closely bound with gear fetishism) forms a prerequisite to participation and that those enacting this performance collectively form communities.

In order to examine the aforementioned tropes of masculinity and gear fetishism within individual communities and the domain at large, my thesis critically analyses a number of distinct discourses in the form of academic literature, commercial print media texts and audio technology institutions. These discourses, in the linguistic sense of the word, form appropriate categorisations for this thesis overall, as I argue they reflect a spectrum of masculinity and gear fetishism present within the totality of the audio technology domain. This spectrum is representative of differing perceptions and enactments of masculinity that are in themselves informed by factors of class, embedded cultural practices and beliefs. By examining this spectrum it becomes possible to observe how exclusive these communities are and how difficult it is to become integrated into one of them. I argue that a hegemonic masculine performance often functions as a prerequisite to participation, as does an

adherence to, or at the very least a public performance of, the discursive tropes of gear fetishism and technical knowledge.

As well as referring to discourse in a linguistic sense, I also draw upon the seminal work of Michel Foucault, in which discourse is explicitly connected with practice. It is suggested that 'since all social practices entail *meaning*, and meanings shape and influence what we do – our conduct – all practices have a discursive aspect' (Foucault, 1997 cited in Hall 1997: 44). If we consider one's conduct, or as I argue, their performance, to constitute discourse, then an appropriate analysis thus seeks to interpret the degrees of (non)conformity to this discourse. Just as theories of gender and masculinity studies refer to the rules of performance engaged with in order for one to outwardly appear 'legitimate', I draw upon a Foucauldian theory of discourse to investigate the 'correct' application of the enunciative function, and its role in determining the 'tidy' dichotomy outlined above with respect to dominant and deviant discourse participants (Foucault 1997: 88). Such an analysis is inevitably concerned with the mediation of power, as Marie Smith has astutely observed. In this context, Smith suggests that 'the issue of power, and its closely connected manifestation, discourse, is of vital importance to the study of sound engineering' (2009: 22). In assessing discourse and power, I therefore also explore knowledge construction, principally through the aforementioned trope of gear fetishism, but also through participants' reliance on technical language. On knowledge construction, noted sound studies scholar Jonathan Sterne has observed that:

'Every field of sonic practice is partially shaped by a set of knowledges of sound that it motivates, utilises and operationalises ... we must therefore place these ways of knowing in tension ... we must not automatically take any discourse about sound in its own terms, but rather interrogate the terms upon which it is built' (Sterne 2012: 9).

In deconstructing the audio technology community discourse, I wish to place in tension the supposed democratising effects of massified technological artifacts with what has been identified as this domain's exclusive discourse that privileges participation of a select, often masculine demographic. In order to explore these concepts in greater depth, I also draw upon noted scholars with respect to the concepts of phallogocentrism and objectification as detailed below.

1.2 Phallogocentrism and Objectification

Within the context of my research, phallogocentrism is defined as the language of patriarchy and can thus be considered as a system that produces texts, as well as rules as to whom can enunciate and how one can enunciate. By this, I mean to suggest that phallogocentrism is a system of signification in the sense that it necessitates the maintenance of a normative symbolic and material order that privileges masculinity in the construction of meaning (Derrida 2001). The degree of adherence or deviancy from this normative order thus determines one's ability to participate (or relative exclusion) as well as one's perceived legitimacy within the domain. Phallogocentrism is thus responsible for establishing hierarchical divisions, or 'striated' spaces (Massumi in Deleuze and Guattari 2011: xiii) that distinguish between the normative or deviant participants (the subject and object respectively). Aligning this concept with the work of Michel Foucault, one can observe that an adherence to the enunciative function is a fundamental means of distinguishing between the subject and the object (Foucault 1997: 49, 95), and is thus useful in determining the exclusive potential of *Sound On Sound* magazine in Chapter Five by bringing into question the relations of power and knowledge as mechanisms of selection and exclusion (Foucault 2001: 173; Lyotard 1997: 8-9).

Phallogocentrism has been defined by Judith Butler as a 'masculinist signifying economy' (1990: 18). Breaking this statement down, phallogocentrism dictates that the deviant or non-normative persons (objects) are always relative to that of the phallic standard (subject). This requires that the deviant be exchanged as a commodified object and is thus prevented from participating in discourse formation and rendered invisible. The privilege of the subject is thus defined and solidified through the objectification, commodification and exchange of the object (an economy). The subject specifies the enunciative function, and thus that which is enunciated, as well as the right to speech and the right to understand. These rights are, as Foucault has noted, confined 'to a particular group of individuals' (1997: 68). The object is therefore not privy to 'knowledge' in the Foucauldian sense, and so lacks power (Lyotard 1997: 8-9). The object is unable to utilise the enunciative function of the archive and so is denied agency, and ultimately visibility. This is a sentiment echoed by Donna Haraway who states that 'the object both guarantees and refreshes the power of the knower, but any status as *agent* in the productions of knowledge must be denied the object' (Haraway 1991: 197). This echoes the work

of Foucault concerning the law of statements where he observes that 'there can be no statement that in one way or another does not reactualize others' (1997: 98). Therefore within a phallogocentric archive, the subject and object are mutually dependent on each other for their collective existence and perpetuation.

Jacques Derrida has similarly noted the hierarchical and dichotomous structure implicit to relations between the subject and object. More than this, he notes how privilege is granted through this structure, stating that 'noncritical privilege [is] naively granted to the other series by a certain structuralism. Our discourse irreducibly belongs to the system of metaphysical oppositions' (Derrida 2001: 22). Considering this statement in relation to audio technology magazines and the wider domain, it becomes possible to understand how phallogocentrism functions as a means of perpetuating this structure, as the array of symbols used to form what are perceived as legitimate enunciations and articulations of knowledge, are tied to tropes of gear fetishism and masculinity. This confirms the work of Heward who has also noted the importance of these tropes in establishing privilege (2009: 1), as well as the work of Foucault (1997: 129) regarding the archive and Tomaz de Carvalho concerning the discourse of home recordists (2012). It is important to note here that phallogocentrism only allows for a dominant, masculine discourse, as all enunciations are formed from the language of patriarchy itself. In order to better illustrate this point, Luce Irigaray presents the following, hypothetical exchange: When one utters the concern 'I don't understand what "masculine" discourse means', Irigaray responds: 'Of course not, since there is no other. The problem is that of a possible alterity in masculine discourse - or in relation to masculine discourse' (Irigaray 1985: 140). The dominant enunciative function thus ensures a standardised formula for signification, one reliant upon hierarchical, oppositional binaries (Derrida 2001: 22) and thus a striated, gridded, hierarchical organisation of values (Massumi in Deleuze and Guattari 2011: xiii; Foucault 2001: 173). More than this, those who enunciate using the dominant enunciative function are always in opposition to the objectified and commodified who are thus subject to perpetual exchange and consumption (Butler 1990: 18).

Having observed the necessary interdependence of the subject and object, it is useful at this point to present a definition of objectification within the context of this thesis, and so better understand the nature of the relationship between editorial staff (subject) and the readership (object) of audio technology magazines. Martha

Nussbaum presents a useful framework of objectification well suited to this purpose, as will become clear through its application to archival statements in Chapter Five:

‘1. Instrumentality: The objectifier treats the object as a tool of his or her purposes. 2. Denial of autonomy: The objectifier treats the object as lacking in autonomy and self-determination. 3. Inertness: The objectifier treats the object as lacking in agency, and perhaps also in activity. 4. Fungibility: The objectifier treats the object as interchangeable (a) with other objects of the same type, and/or (b) with objects of other types. 5. Violability: The objectifier treats the object as lacking in boundary-integrity, as something that it is permissible to break up, smash, break into. 6. Ownership: The objectifier treats the object as something that is owned by another, can be bought or sold, etc. 7. Denial of subjectivity: The objectifier treats the object as something whose experience and feelings (if any) need not be taken into account’ (Nussbaum 1995: 257).

It is important to recognise that not all of these need to be enacted in order to objectify a participant, but that many are relevant when investigating the discourse of *Sound On Sound*. Following Nussbaum’s work, objectification is addressed in relation to the enunciative function of *Sound On Sound* as formed by phallogocentrism. I pay particular attention to the implementation of hierarchical spaces, demonstrating how such formations establish mono-directional knowledge transfers that are didactic and exclusive (Heward 2009: 14; Théberge 1997: 127) and thus function in opposition to the comparatively rhizomorphous capacity of *Tape Op* (Deleuze and Guattari 2011: 16). Within these spaces, I argue that the dominant enunciative function privileges the subject (Foucault 1997: 95) and oppresses the object (Butler 1990: 18).

1.3 Research Questions

Throughout the following chapters of this thesis, I engage with a series of interconnected research questions as a means of examining and contributing to the growing body of work concerning gender, and thus by extension masculinity, with respect to the audio technology domain. The central research question of this work is as follows: Which mechanisms, either discursive or material, facilitate the maintenance of masculine privilege within the audio domain, despite the implications of ‘democratising’ technologies? In responding to this question, I engage with a body of literature concerned with the supposed ‘democratising’

effects of audio technology developments (Tomaz De Carvalho 2012; Barber 2012; Heward 2009; Homer 2009; Théberge 2001, 1997). I draw attention to arguments that assume a reduction in price point and audio tool miniaturisation inevitably necessitates a form of democratisation with respect to audio community participation. I critique this view by examining the largely homogenous and unchanging demographics of specific audio communities, and the discursive tropes such as gear fetishism that persist in spite of audio technology's perceived, and often lauded, democratic potential. I suggest that the primary mechanisms facilitating masculine dominance are a perceived performance of masculinity, which is intrinsically tied to the articulation of technical knowledge alongside the practice of gear fetishism.

A second, closely related, research question is: How have masculine gender performances arrived at their current, privileged position within the audio technology domain? In responding to this question, I present a history of audio technology community discourse beginning with 19th century conceptions of public and private spheres. I demonstrate that there existed a discursive (and material) gendered public/private divide, which linked objects and interests of both mass and high culture respectively. This resulted in gendered perceptions of labour suitability that stressed masculine technical competence, scientific understanding and rationality in opposition to the supposed feminine values of mass culture consumption and technophobia. I show how, historically, audio artifacts have been reappropriated and reinscribed as masculine objects within this simplistic dichotomy. I argue that an overwhelming emphasis on gear fetishism, as well as technical understanding and articulation within audio technology discourse, have established and maintained a dominant masculine position (Heward 2009; Douglas 2004; Campbell 2003; Citron 1990; Huyssen 1986).

In order to provide primary evidence of these key discursive features, the final research question is tailored towards specific community examples of masculine dominance and the democratic potential of audio technologies. I ask the question: What role do industry print media texts play in promoting or challenging the democratic potential of audio technologies? In order to respond to this question, the thesis addresses specific print media texts as outlined in the chapter summaries below, and applies theories of genderscript (van Oost 2005: 194-196), phallogocentrism, (Derrida 2001; Haraway 1991; Butler 1990) and Foucauldian discourse analysis (Foucault 1997: 129) in order to assess their potential agency

and influence. I also investigate critical academic sources that assess the role of the music technology press in both establishing and perpetuating the fetishisation of technology with respect to specific audio communities and the wider domain (crucially Bennett 2012c: 124).

1.4 Chapter Summaries

Chapter Two serves as a critical literature review of academic audio technology discourse. I investigate literature concerned with consumption and production, notably Marx (1887 [2015]), Veblen (1899 [1918]), Feenberg (2005; 2002) and Veak (2000), and draw attention to their influence upon, and parallels with, the foundational texts of this thesis located within the Social Construction of Technology Studies (SCOTS). These texts are subsequently assessed in order to examine the cumulative co-construction of users and technologies. I contend that academic discourses concerned with audio technology all too often simplify the agency of participants and artifacts in each others' respective co-construction, resulting in a simplistic dichotomy of techno-determinist and techno-pessimist arguments. I argue that techno-determinism, in attributing agency to technology, effectively perpetuates the discursive trope of gear fetishism, and thus a limited model of user agency in the construction of audio community participation. Conversely, techno-pessimism places a greater stress on knowledge acquisition and dissemination as a prerequisite to domain participation. In exploring this dichotomy, an argument is presented against the notion of modern audio technologies' ability to democratise the domain. I contend that theories of democratisation fail to acknowledge the complex and interdependent development of user and technology agency in the creation of a largely exclusive and hegemonic discourse. Instead, I refer to modern audio technologies as being massified. This concept forms a useful point of departure in analysing audio community discourse, in which I argue that domain participation is intrinsically linked to discourse and the associated communities internal negotiations of knowledge and power.

The third chapter examines the historical and thematic development of audio technology discourse within the related music industry press. Using the social constructivist methodology of genderscript (van Oost 2005: 194-196), I explore the inscription of masculinity onto audio domain print media, as well as technological artifacts such as the phonograph. I demonstrate how audio technologies have

historically been scripted (and sometimes physically constructed) as ‘feminine’ based on nineteenth century notions of public and private arenas that directly correlated with widespread perceptions of mass and high culture. As an extension of this, the masculine re-appropriation and re-inscription of mass culture audio devices is also examined. I present evidence of a dominant masculine performance that stresses technical competence and scientific ingenuity that has historically enabled a male appropriation of audio devices, as well as physical space within the private (and socially constructed as feminine) arena. My argument draws on a number of scholars concerned with the historical development of audio print media and associated technologies, as well as social constructivists’ works and texts from gender studies. Their collective analysis can be considered as an interdisciplinary study on masculine audio technology communities that effectively deconstructs the key operating principles of exclusion.

Chapter Four elaborates many of the points explored in Two and Three, primarily through a detailed discourse analysis of *Tape Op* magazine. Original research is presented, including an interview with the magazine’s longstanding editor Larry Crane alongside a comprehensive analysis of archive material taken from the magazine itself. The chapter serves as part of a comparative discourse analysis of audio technology print media that also encapsulates chapters three and five. I begin by presenting a detailed examination of Foucauldian discourse analysis, introducing and clarifying terminology such as the archive (1997: 129), the idea of the enunciative function (1997: 88), and the concept of discourse defined previously. Aligning this work with SCOTS methodologies such as genderscript and the antiprogram (Akrich and Latour 1992: 261), I investigate the agency of discourse participants, and the possibilities for rupturing the hegemonic discourse of the *Tape Op* community. In order to explore this notion of rupture, I draw upon the theoretical work of Deleuze and Guattari (2011). I argue that *Tape Op*, in particular through its adoption of interview transcripts and the inclusion of a community letters section, offers possibilities for rupture through horizontal engagement with community participants (largely by functioning as an intermediary or peer). I suggest that this structural composition de-stratifies what previous chapters have shown to be a hierarchical audio technology domain rooted in outdated, dichotomous notions of public and private arenas, dating back to the early nineteenth century.

The fifth chapter presents a discursive analysis of the music technology magazine *Sound On Sound* (the differences between music technology and audio

industry publications is covered in Bennett 2012c: 121). Primary research is once more provided in the form of an exchange with editor-in-chief Paul White, as well as statistical evidence and the analysis of archive material. Central to this chapter is once more Foucauldian discourse analysis as well as SCOTS methodologies. In addition, I explore the concept of phallogocentrism by drawing on the work of key theorists in this area, particularly Derrida (2001), Haraway (1991) and Butler (1990). I contend that central to *Sound On Sound's* hierarchical and exclusive structure is its adherence to a phallogocentric system of enunciation and signification that necessitates the privileging of the masculine subject over other participants. I draw upon Butler's conception of phallogocentrism, that of a 'masculinist signifying economy' (1990: 18), in order to demonstrate this last point, in particular with respect to hegemonic masculine performances that objectify deviant participants within this exchange. I explore objectification by drawing on the work of Nussbaum (1995) and present *Sound On Sound* as functioning in a largely didactic capacity that objectifies community participants.

The sixth chapter is concerned with deconstructing the performances of masculinity referred to in the preceding chapters. Exploring academic work from the fields of cultural, gender and sound studies, as well as the Art of Record Production forum, I investigate the configuration of audio domain masculinity as informed by the factors of class and wealth. I examine masculine performances such as the handy-male-labourer, and deconstruct how these relate to the aforementioned factors, as well as cultural gender stereotypes. I also present an argument against the notion of a masculinity crisis, which supposes a feminisation of masculine gender constructs as problematic. The second half of this chapter explores opportunities for reinscribing the discourse of the audio domain through an investigation of Women's Audio Mission (WAM) (for a more detailed investigation into women and the audio industry, and first-hand accounts specifically, see Reddington (2008; 2005; 2004)). I contend that in its formation as a *public* audio community, WAM challenges the dominant, masculine audio domain genderscript and thus offers opportunities for its rupture. I contend that WAM encourages equality and diversity through the subversion of the hegemonic masculine discourse. I form a comparison of WAM alongside the work of Paula Wolfe (2012) who contends that massified audio technologies enable the participation of women in the audio domain, by facilitating their reclamation of male appropriated domestic spaces (see also Keightley 1996). I contend that whilst useful to some extent,

instead, through a deconstruction of masculine privilege, broader demographic integration into the audio domain can be introduced.

I conclude the thesis by detailing my original contribution to knowledge in relation to the field of sound studies. I present a summary of the research conducted and offer several possibilities for its future application or extension within an academic context. I also suggest means for masculine recordists to deconstruct their own privilege and homogeneity within the audio domain.

Chapter Two: Literature Review

This chapter is concerned with what I call the cumulative co-construction of audio technology and its users. By this, I mean the ways in which both users of technology and the audio technologies themselves mediate the practices and functionality of one another through the continual navigation of their respective 'borders' (Bijker and Pinch 2012: xvii). The chapter engages with academic literature on this subject, drawing on texts from the field of the social construction of technology studies (SCOTS) such as Oudshoorn and Pinch (2005), Pinch and Bijsterveld (2004) and Bijker and Pinch (2012), while developing a conception of social constructivist theory that acknowledges both user and technology agency in their mutual development. In doing so, I explore some of the key discursive tendencies within the fields of audio technology, sound studies, the Art of Record Production and the critical theory of technology. I present a critique of normalised conceptions of user and technology agency that rely upon restrictive deterministic and pessimistic perspectives. I will demonstrate how such simplistic analyses of audio technology fail to acknowledge what I show as being the complex interdependence and cumulative co-construction of audio technology, its users and discourse. In doing so, I also draw upon recent work, notably Axel Bruns (2009; 2008), on the term 'Producers' that recognises user-led content creation. I demonstrate how the antiquated and outdated modes of communication and enunciation inherent to the audio domain prohibit the realisation of Bruns' conception of blurred boundaries between active production and wholly passive consumption.

By aligning SCOTS methodologies with notable academic work on technological precursors, such as that of Bennett (2012a), Sterne (2003) and Katz (2004), I offer a new understanding of mutual construction as part of the thesis' original contribution to knowledge. I argue that the social construction of recording technologies, from their inception to the present day, has sustained a barrier to participation in the audio technology domain via an implicit prerequisite of knowledge symbolically, operationally and discursively. As a consequence, I contend that associated audio technology communities are highly exclusive and demographically homogenous. To explore these concepts in more detail, I address arguments regarding the proposed 'democratisation' of the audio field by drawing on

the work of Tomaz De Carvalho (2012), Heward (2009), Homer (2009) and Théberge (1997).

Whilst particular attention is paid to texts from within the fields of sound culture, sound studies, the Art of Record Production and the critical theory of technology, it is important to recognise that these research areas often overlap, and are fundamentally interdisciplinary in nature and, as such, the research presented often encompasses broader areas of study. Building on comprehensive research concerned with the social conditions of technological innovation, such as those of Théberge (1997) and Barber (2012), my research is fundamentally holistic in its approach. By this, I mean that I not only examine the historical development of audio technology discourse, but also engage with issues concerning the agency of users and technologies, specifically their potential to mediate and inscribe discourse and artifacts. Assuming a social constructivist approach informed in part by the work of Oudshoorn and Pinch (2005), I reflect upon the nature of users' engagement within the audio technology community. On this last point, I build upon the pioneering work of Théberge (1997) concerning the democratic potential of audio tools, and I suggest, as an original knowledge contribution, that the cumulative co-construction of both users and technology has resulted in a discursive propensity towards exclusivity within contemporary print media texts and communities.

In order to define the participants of these communities, I utilise the term 'recordists' as offered by Albin Zak (2001: xii). This category is useful in grouping a series of disparate definitions concerned with audio production practices and occupations that seek to distinguish between the roles of engineers, producers, musicians etc., as components of a recording chain (ibid.), a discussion of which lies beyond the scope of this work¹. With respect to my own work, particularly in the case of the print media sources investigated, the term recordists is useful in identifying community participants regardless of their occupation within the audio industry, which is often unspecified. More than this, within the context of this thesis, I am principally concerned with the means through which audio engineers *signify* as *legitimate* community participants within discourse and, thus, the term 'recordists' functions as a useful rubric.

Regarding this signification, I contend that a historical subject/object dichotomy permeates all contemporary communication practices of the audio

¹ For a more detailed understanding of how these roles are differentiated, see Théberge (2012).

technology domain (e.g discourse, the enunciative function and thus visibility and legitimacy), including its associated communities and its respective participants. I present a case for the consideration of audio technology community discourse as being inherently exclusive based on the necessary othering (and thus the objectification (see Nussbaum 1995)) of those considered to be non-recordists through a series of discrete yet interdependent discursive features, as later chapters demonstrate in depth. Thus, recordists are only made visible at the expense of another's (the non-recordist) exclusion and relative invisibility. The 'recordist' is therefore the subject within a dichotomous discursive structure that privileges a select few within a rigid communication hierarchy. The subject can, as later chapters examine in much greater depth, only exist through the objectification of another. It is for this primary reason that the extension of Zak's original definition of a 'recordist' was selected, as it encompasses many more (traditionally isolated) roles within the audio production process and thus underlines their existence at the expense of those excluded.

As previously suggested, this chapter investigates the interdependent development of both users and technology, as well as their mutual co-construction. An analysis of this complex configuration also reveals the potential suitability of comparable terminology for 'recordists' with respect to their roles concerning consumption and production such as Axel Bruns' term 'Produser' (2009; 2008) and Alvin Toffler's 'Prosumer' (1980). Concerning the latter, Toffler suggests in his seminal work *The Third Wave* (1980) that with massified forms of technology, the roles of consumer and producer will inevitably align and overlap in order to satiate declining business profits, resulting in 'prosumer' customisation and specialisation (1980: 182-184). Bruns has critiqued Toffler's label, however, suggesting that 'the prosumer is clearly not the self-motivated creative originator and developer of new content ... but simply a particularly well-informed, and therefore both particularly critical and particularly active, consumer' (Bruns 2009: 1). Here, Bruns is referring to what this thesis identifies as 'hobbyist' literature and practitioners, an analysis of which forms the focus of Chapter Three, in particular the 'highly specialised, high end consumers which exist in areas such as hi-fi' (ibid.). Bruns seeks to establish the term 'produser' as a response of sorts to the widespread adoption of Toffler's label to describe specialised communities that are ultimately fractured and fragmented from the 'mainstream' (2009; 2008). In its stead, Bruns' concept of 'produsage' focuses on collaborative, community-based organisational structures

that resist hierarchy through common ownership and the perpetual development of so-called 'unfinished artefacts' such as Wikipedia and YouTube content (2008). Thus, both Toffler and Bruns envision possibilities for the roles of consumer and producer to merge and are thus useful expressions when assessing the relative influence or mediative potential of users with respect to technology. What they fail to consider however, are the implications for user and technologies co-construction with respect to *discourse* and discursive formations within community hierarchy.

The focus of this thesis lies clearly with the study of masculinity, historical and contemporary gendered divisions of labour, as well as the exclusive potential of the audio technology domain and how these themes become manifest as discursive features. I continually demonstrate how an antiquated and highly *stratified/striated* (see Chapter Five) and hierarchical model of communication and enunciation inherent to the audio domain is reinscribed as a result of user and technology interdependence. Thus, I contend that the realisation of Bruns' conception of 'produsage' rooted in 'community structures [that] are usually heterarchical rather than hierarchical' (2008), is prohibited. He further suggests that:

'Produsage is based in the first instance on collaboration and consensus, and rules are generally enforced by the community rather than by individual leaders. Communities are also highly permeable for newcomers with appropriate skills and interests (as long as they are prepared to accept the community's overall rules and values)' (Bruns 2008).

As later chapters of this thesis demonstrate, knowledge of audio technology is heavily policed and guarded by community gatekeepers, restricting and regulating who can or cannot be assimilated into respective communities. More than this, I demonstrate how knowledge comes to be codified as masculine based twentieth century perceptions of labour suitability. Therefore, whilst Toffler would indicate that gendered divisions of labour suitability emerged during the industrial revolution or 'second wave' and persist today as a 'modern 'battle of the sexes' [that] can be traced in large measure to the conflict between two work-styles' (1980: 43-45), it is my contention that contemporary audio technology discourse remains firmly grounded in a divide represented by these so-called 'work-styles': that of perceived masculine objectivity and female subjectivity. As a consequence of the many factors highlighted above, I have opted to utilise the term 'recordists' within this thesis as, more so than the labels of Toffler and Bruns, it functions as a

universalising description that allows one to more closely scrutinise the role of discursive masculinity within the audio domain, in particular with regards to community hierarchy.

2.1 Situating the Work

Jonathan Sterne observes in *The Audible Past* (2003) that 'people design and use technologies to enhance or promote certain activities and discourage others. Technologies are associated with habits, sometimes crystallising them and sometimes enabling them. They embody in physical form particular dispositions and tendencies' (2003: 8). Keith Negus conveys a similar sentiment, suggesting that user practices 'cannot be separated from their realisation in and through particular technologies, and the way in which specific groups and individuals have struggled to exert control over the use and definition of these technologies' (1992: 20). Considering the interdependent relationship of audio technology and its users then, it is necessary to interpret the varied sociological and discursive cultures that have informed audio technology design and implementation, as well as this very same technology's social impact as part of a perpetual cycle of reinscription. By this, I mean to suggest that, following Oudshoorn and Pinch, 'in addition to studying what users do with technology, we are interested in what technologies do to users' (2005: 2).

The analysis conducted within this thesis therefore draws upon a number of previously unconnected sources as a means of establishing points of reflection concerning the co-construction of users and technologies. The implications of this intersection are investigated 'in order to make more meaningful connections between how technology is produced and ultimately used' (Barber 2012), in particular with respect to the exclusion and marginalisation of specific demographics (Feenberg 2005; 2002). Aligning Barber's concept with a series of significant social constructivist methodologies (notably genderscript (van Oost (2005: 194-196)) as well as Andrew Feenberg's seminal work on the critical theory of technology (2002 [1991]), I am particularly concerned with how users are produced within this frame, but more so, 'the consequences of persisting divisions between classes and between rulers and ruled in technically mediated institutions of all types.' (Feenberg 2005: 48). As such, this thesis extends beyond the realms of the critical theory of technology and social construction of technology studies, and comes to also

encompass masculinity and gender studies, particularly the work of Butler (1990), Haraway (1991) and Beynon (2002), as well as philosophical works concerning phallogocentrism (Derrida 2001) and Foucauldian discourse analysis (Foucault 1997: 129). This is not to suggest that texts from the aforementioned fields are not worthy of consideration, as indeed the following section details their many valuable contributions but rather that a more useful understanding of audio community participation and exclusion can be gathered by broadening the literature base to accommodate sources from other disciplines.

In discussing the form and research approach of his seminal work *Any Sound You Can Imagine* (1997), Théberge suggests that ‘for the researcher ... the entire network of relationships [in the realm of audio production] needs to be kept firmly within view’ (1997: 10). One must, therefore, acknowledge the need for interdisciplinary research areas and associated methodologies that demonstrate an awareness of social constructivism, the critical theory of technology, gender and masculinity studies as well as continental philosophy, not least when assessing what this thesis demonstrates as being an overwhelmingly exclusive, masculine (Heward 2009; Douglas 2004; Campbell 2003; Citron 1990; Huyssen 1986) dominated industry of ‘double production’ (Théberge 1997: 130; Bennett 2012c: 119) that fetishises audio technology within discourse (see Bennett’s concept of ‘technoporn’ (2012c: 124)) as a means of perpetuating community hierarchy.

With these points in mind, I have sought to situate my work in the field of sound studies. This field was originally defined by two of its leading figures as ‘an emerging interdisciplinary area that studies the material production and consumption of music, sound, noise and silence and how these have changed throughout history and throughout different societies’ (Pinch and Bijsterveld 2004: 636). More recently, Jonathan Sterne has suggested sound studies as ‘a name for the interdisciplinary ferment in the human sciences that takes sound as its analytical point of departure or arrival. By analysing both sonic practices and the discourses and institutions that describe them, it redescribes what sound does in the human world, and what humans do in the sonic world’ (2012: 2). Most significantly, both of these definitions point to sound studies as being fundamentally interdisciplinary. This therefore lends scholars a degree of flexibility with respect to approach and methodology as there exists ‘no priori privileged group of methodologies’ (Sterne 2012: 6) through which to investigate the field. It is perhaps better therefore to position sound studies as a series of intellectual aspirations, rather than a discrete

set of objects or methods (Sterne 2012: 4), as the interdisciplinary nature of its construction ensures a level of discrepancy amongst authors as well as the texts produced. In fact, much of the associated literature is distinguished primarily because of its self-awareness as single components within a much larger whole.

The following literature review contributes to the growing field of sound studies by recognising this complexity, and analysing a series of previously unlinked texts that, when assessed collectively, establishes a new conception of audio technology communities and their often exclusive discursive practices.

2.2 Underpinning Theories of Commodity Production and Consumption

In order to frame much of the critical literature considered in this chapter, it is useful at this point to consider what is meant by the social construction of technology within the context of my own research, and chart its development as a field of study, beginning with its conception in the late 1980s. Prior to this however, it is of the utmost importance that I identify the theoretical origins of this school of thought, and demonstrate the lasting impression several theorists have had upon the interrelations between production and consumption, particularly with respect to the emergence of mass production technologies in the early twentieth century. The significance of these works in relation to the aforementioned concept of gear fetishism is thus also explored by examining the interdependent growth of production and consumption.

Guido Schulz has noted that ‘already in his earliest writings ... Marx uses the expression “fetish” or “fetishism”’ (2011: 4), but that it is not until much later that the concept is explicitly tied to the political economy, and in particular, an analysis of the *commodity*, defined by Marx as ‘an object outside us, a thing that by its properties satisfies human wants of some sort or another’ (Marx 1887 [2015]: 27). The manifestation of fetishism with respect to this commodity thus informs the popular concept of ‘commodity fetishism’ although, as Schulz has observed, ‘Marx never used the expression “commodity fetishism” (“Warenfetischismus”), [despite] most of the literature on Marx’s concept of fetishism call[ing] it that’ (Schulz 2011: 5)². In discussing the relations between production and the commodity itself, Marx referred instead to ‘fetishism’ as being a false belief in the ‘natural’ ascription of social properties to fetishied objects (commodities). To clarify, commodity fetishism refers

² For a typical example, see De Angelis (1996)

to a belief in the intrinsic qualities of objects external to a complex political economy of production and consumption. As Marx states, the 'extent some economists are misled by the Fetishism inherent in commodities, or by the objective appearance of the social characteristics of labour, is shown, amongst other ways, by the dull and tedious quarrel over the part played by Nature in the formation of exchange value' (1887 [2015]: 52). In contrast, an awareness of the highly regulated infrastructures of social power that attribute value to commodities as a component of production are separately explored by Marx through 'fetish character'. It is the former term that perhaps best informs my own conception of gear fetishism, in that audio technologies are often viewed in isolation, outside of their immediate use and practice (Bennett 2012c: 126), or indeed their 'function' as noted by critical technology scholar Andrew Feenberg (1999: 211). Audio technologies (commodities) are instead wielded by recordists as a claim to power and 'prestige' as explored by Thorstein Veblen in *The Theory of the Leisure Class* (1899) and discussed below. Fetishism instead, as Marx notes, '*attaches* itself to the products of labor [and is thus] inseparable from the production of commodities' (1887 [2015]: 47). As such, the concept of fetishism pays particular attention to the human's (the subject's) mediation and interpretation of objects. On this point, Schulz has observed that 'the reification of social relations that gives rise to the commodity fetish is implied in the commodity itself and is inevitable' (Schulz 2011: 5). Here, Schulz acknowledges the complex interdependence that characterises subject/object relations, and in particular the role of the market economy in attributing value and meaning to the object. Within the context of this thesis, this process is explored through social constructivist methodologies as detailed in section 2.3. Prior to an examination of these theories however, it is useful to continue to exam the influence of earlier texts upon this significant field of study.

The intellectual influence of Karl Marx is notably far reaching. In relation to the concept of gear fetishism however, the theory of 'conspicuous consumption' put forth by Thorstein Veblen is perhaps the most valuable extension (1899 [1918]: Ch 4). Veblen suggests that the 'specialised consumption of goods as evidence of pecuniary strength ... is traceable back to the initial phase of predatory culture' (ibid.: 68). It is this predatory and necessarily competitive behaviour that epitomises conspicuous consumption, whereby the procurement of 'luxury goods', or indeed fetishised commodities, is implemented as a means of displaying economic and thus social power through their exhibition in public space. A commodities' socially

ascribed value is therefore explicitly tied to its user (as a singular agent) within a complex hierarchy rooted in power acquisition; be this literal or by artifact association. A closer analysis of Veblen's theory exposes the 'rules' as it were that appear to dictate the display and mediation of this social and economic power, in particular by drawing attention to the projected authority of the phallogocentric subject within an economy (Butler 1990: 18).

Veblen astutely observes the role of patriarchal forces in attributing social value to the commodities themselves, and exposes how these commodities serve to threaten, and thus mediate, the boundaries of class and gender. He states that:

'The consumption of luxuries, in the true sense, is a consumption directed to the comfort of the consumer himself, and is, therefore, a mark of the master. Any such consumption by others can take place only on a basis of sufferance. In communities where the popular habits of thought have been profoundly shaped by the patriarchal tradition we may accordingly look for survivals of the tabu on luxuries at least to the extent of a conventional deprecation of their use by the unfree and dependent class. This is more particularly true as regards certain luxuries, the use of which by the dependent class would detract sensibly from the comfort or pleasure of their masters' (Veblen 1899 [1918]: 72).

Most profound in the statement above is the characterisation of the 'master' and the role of fetishised commodities in substantiating his masculine authority. Veblen's assessment of comparable consumption by others as having the potential to depreciate and undermine the perceived value of these commodities (and that which they represent), underscores this embedded gender disparity and serves to reiterate the absolute authority of the patriarch (the subject) over and above the 'dependent class' (the object). As this thesis continually demonstrates, the audio technology domain has most certainly been shaped by this patriarchal tradition (see Chapter Three), and thus there exists a contemporary discourse within which the survival of this subject/object dichotomy is reflected. The definition of gear fetishism within this thesis therefore builds upon the work of Veblen, by examining the 'survival' of an exclusive conception of audio domain participation, one intrinsically linked to perceptions of power as informed by technological artifacts and the relative visibility these commodities attribute to their users. In analysing gear fetishism, I explore its deep connections with masculine gender performances, and like Veblen, identify 'conspicuous consumption of valuable goods [as] a means of reputability to the gentleman of leisure' (Veblen 1899 [1918]: 75), albeit refocussed to the audio

technology domain. In discussing gear fetishism, it is also important to acknowledge the contemporary work of Samantha Bennett (2012c: 124), whose analysis of 'technoporn' necessarily draws upon the works investigated here. Bennett's key observations point to a culture of institutionalised sexualisation with respect to audio technology advertising and consumption habits, in that commodities are fetishised whereas 'the role of the recordist, purpose or *output* is rarely acknowledged' (2012c: 126). The dominance of the masculine subject is thus assured through the acquisition of sexualised artifacts that imbue him (the 'master') with enunciative, social and economic power and prestige. The analysis of print media texts undertaken in chapters four and five explores the associated subject/object dichotomy by drawing attention to specific instances of 'technoporn' (fetishised commodities) and the mediations of power introduced.

Also pertinent with respect to the texts surveyed within this chapter is the concept of technological determinism. Believed to have been coined by Thorstein Veblen, technological determinism considers technology as having the capacity to shape social structures and cultural values (Murphie and Potts 2003: 11). As such, it can be considered as a doctrine of causal primacy in that mediative power is assigned to singular agents of change. The determinist stance is problematic, however, in that its limited scope of argument fails to acknowledge the inextricable link between human and nonhuman mediation in the co-construction of audio technology and user perceptions. Technological determinism instead positions social structures as organising themselves to sustain technologies and thus to *restrict* the agency of human participants as part of larger social bodies. The works of both Andrew Feenberg (2005; 2002) and Tyler Veak (2000) have acknowledged the limitations of determinist thought and have instead positioned alternative theories concerning the technology-society nexus. Feenberg's *Transforming Technology* questions the 'necessary' human submission to the 'harsh logic of machinery' (Feenberg 2002: v) by bringing into question its neutrality and arguing against the concept of 'essence' (ibid.: 213). In its place, Feenberg advocates for a 'radical democratisation of technological societies' (2002: x), suggesting that marginalised actors (the 'dependent class' (Veblen 1899 [1918]: 72)) can resist the hegemonic control of technological design and application. In analysing the mediation and influence of agents with respect to the audio technology domain, this thesis investigates the extent to which marginalised or excluded participants can resist hegemonic control through the discursive de-inscription of masculinity (see

Chapter Six). In order to explore this process in greater detail, the following section investigates the social construction of technology studies, and in particular the concept of genderscript (see also Chapter Three) that reveals the phallogocentric construction of audio tools and the surrounding discourse.

2.3 Social Construction of Technology Studies

Oudshoorn and Pinch have explained that ‘in the 1980s and 1990s, the old view of users as passive consumers was largely replaced in some areas of technology studies, and along with it the linear model of technological innovation and diffusion’ (2005: 3). Social construction of technology studies therefore emerged as an interdisciplinary field within which users were afforded greater agency, and an awareness of their interdependence with technology was more fully recognised than in previous studies (see section 2.2). The field itself, SCOTS, came to encompass three distinct fields of enquiry which served to function in this capacity and were designated as follows: Large-Scale Technological Systems (LTS) Actor Network Theory (ANT) and the Social Construction of Technology (SCOT). Rather than establishing and discussing the subtle nuances that delineate these distinct yet related approaches, I examine the components most relevant to my chosen area of research and highlight the capacities in which SCOTS functions as a means of understanding and interpreting audio technology and its communities. Furthermore, I point out regions of overlap between approaches as a means of presenting a more unified theory of social constructivism for the purposes of my research. As suggested by Bijker and Pinch, ‘the common traits between the three approaches [are] more important than the differences’ (2012: xvi). By this, I do not mean to imply that the differences between these approaches are irrelevant and somehow exempt from scrutiny, but rather that a more cohesive understanding can be attained through an analysis of their commonalities.

First and foremost, SCOTS can be said to place an emphasis on integrating empirics and theory so as to explore the complex stories and practices of users and technologies through ‘thick description’ (ibid.: xvii). The analysis of audio technology presented here is therefore concerned with an alignment of these perspectives, with theory being addressed in a more exploratory fashion, one concerned with understanding the roles of users and technologies in the formation of narratives and social practices.

A significant and unifying trait within SCOTS is the methodological principle of recognising user and technology co-construction. All three approaches pay attention to 'how the borders between the social and the technical [are] drawn by actors, rather than assuming that these borders are pre-given and static' (Bijker and Pinch 2012: xvii). Whilst the constitution of an actor differs considerably within each individual approach, the concept remains fundamental to an understanding of the field.

The SCOT approach suggests that users make up discrete social groups, each of whom contributes in some meaningful capacity to the construction and definition of a technology. In turn, each group has the ability to construct 'radically different meanings of a technology' due to their 'interpretive flexibility' in the eyes of users (Oudshoorn and Pinch 2005: 3). Ultimately, however, this interpretive flexibility is restricted by social closure mechanisms that result in the stabilisation of a technological artifact, its application and its target demographic (ibid.). A technology's associated social groups can therefore be considered as fundamental agents in the establishment of closure mechanisms that dictate its exclusive potential. In contrast, actor-network theory 'requires that we take into account how nonhuman actants (both machines and natural forces) can shape the trajectory of technological systems' (Bijker and Pinch 2012: xix), a theory elaborated more fully by Bruno Latour in *Reassembling The Social* (2005) but which falls outside the scope of this work. Whilst the scope of potential actors may differ between SCOT and ANT, both acknowledge the complications concerning agency that often arise in coincidence with technology. By this I mean that the borders between the technological and social are defined by the agency actors employ, however 'where human agency ends and some sort of nonhuman agency begins is not always clear' (Bijker and Pinch 2012: xix). Within the context of my own research, the investigation of borders between human and nonhuman actors is conducted through an analysis of user and technology co-construction with respect to the historical evolution of audio technology. The literature considered hereon frequently displays an implicit textual bias in favour of either technology or user agency which are often pessimistic, deterministic or utopianist in tone. By adopting a SCOTS approach, I reveal this bias and instead acknowledge user and technology mutual co-construction in order to assess exclusive features of audio community discourse and hierarchy.

Significant to one's understanding of historical audio technology development within this work is the concept of configuring the user. Steve Woolgar has suggested that users of technologies should also be considered as 'readers' - a user as represented by designers of technology - in order to 'emphasize the interpretive flexibility of technological objects and the processes that delimit this flexibility' (2005: 8). Woolgar suggests that a user's potential reading of a machine is restricted as a consequence of technological design and production. Configuring the user is then a process of 'defining the identity of putative users, and setting constraints upon their likely future actions' (1991: 59). In my research, I apply Woolgar's theory as a means of investigating the cumulative design of technologies, specifically audio tools and print media texts, that I suggest inherit aspects of their precursors and perpetuate a limited model of engagement within discourse and practice. A more detailed description of this framework is presented throughout this chapter, alongside examples of analogue and digital technologies that exemplify this process.

Whilst I draw on Woolgar's concept, it is important to recognise that he fails to acknowledge the complexity of user configuration as part of an ongoing, two-way exchange. Instead, Woolgar presents designers as having almost sole autonomy as to the configuration of a technology. Mackay et al. have recognised this tendency to simplify the attribution of agency, and instead position the configuration of the user as a much more complex web of relationships: 'designers configure users, but designers in turn, are configured by both users and their own organizations' (2000: 752). Within the context of audio technology development, an analysis of user configuration must certainly acknowledge these individual agents of collective change, as Mark Katz has similarly noted.

Katz has established the term 'phonograph effect' (2004: 2) as a means of articulating the complex interdependence of users and technologies with respect to their co-construction. The effect is defined as 'any change in musical behavior - whether listening, performing, or composing - that has arisen in response to sound-recording technology. A phonograph effect is, in other words, any observable manifestation of recording's influence' (ibid.). Whilst Katz limits his definition to changes in musical behaviour and offers little extrapolation on this point, it is useful to examine the similarities between Katz's work and user configuration within SCOTS. As Mackay et al. (2000) have suggested, there exists a two way exchange with respect to user configuration, with technologies owing much to users in their

establishment. Katz positions his definition in much the same way, suggesting that 'influence ... does not flow in one direction only, from technology to user ... users themselves transform recording to meet their needs, desires, and goals, and in doing so continually influence the technology that influences them' (Katz 2004: 3). Both technology and its users are therefore co-constructed as part of an ongoing cycle of development, mediation and absorption. User configuration is one of the key themes of the thesis, specifically in the context of print media and audio community configuration. More detailed analyses of this theme are therefore undertaken at relevant points throughout the following chapters.

Research conducted by Akrich and Latour (1992) has also acknowledged the rather limited extent of Woolgar's original study concerning user configuration. In its place, Akrich and Latour position objects as actors, constructing the notion of script to recognise how objects of technology enable or constrain the responses of users, and thus 'define a framework of action together with the actors and the space in which they are supposed to act' (Akrich 1992: 208). Akrich and Latour further identify the role of users in shaping technologies through a concept they call the 'antiprogram' (1992: 261), that is, a user's programming of actions that may be in conflict with the intended design. The extent to which users 'underwrite or reject and renegotiate' a technologies intended uses (Oudshoorn and Pinch 2005: 11) is therefore central to antiprogram analyses. In contrast to Woolgar's original approach then, the notion of script can be considered as acknowledging the two-way relationship recognised by Mackay et al. (2000) as script analyses 'conceptualize both designers and users as active agents in the development of technology' (ibid.). My work therefore pays equal attention to users and institutions as a means of articulating the complex symbiotic relationships that characterise audio technology discourse and community co-construction.

Being central to the thesis as a whole, the concept of script is further extended to encompass genderscript - that is: 'how technologies invite or inhibit specific performances of gender identities and relations' (Oudshoorn and Pinch 2005: 10). This is implemented as a means of interpreting community exclusivity through the theoretical lens of masculinity. It has been recognised by Oudshoorn and Pinch that 'genderscript drastically redefines the exclusion of specific groups of people from technological domains and activities' (ibid.), and therefore forms a pertinent point of departure when seeking to better understand how the audio community has maintained its hierarchical stratification. An analysis of genderscript

thus informs much of my argument concerning the nature of audio community engagement, and so appears throughout the thesis as a theoretical lens in several forms. By this, I mean that the notion of script is extended at several points within my work to refer to performances and discourses of privilege that encourage or facilitate the exclusion of those considered external to the dominant community demographic.

The following literature review demonstrates that the cumulative co-construction of users and technology facilitates an exclusive audio community rooted in the discursive tropes of masculinity and gear fetishism. My analysis draws on the theoretical frameworks outlined above as a means of critiquing relevant audio technology literature and, in doing so, draws attention to the complex relationship of interdependence between agents that are so often viewed in isolation. In order to examine this conception of exclusivity in greater detail, I will first interrogate its meaning through the concepts of knowledge/power, democratisation and massification as they are outlined in the following section.

2.4 Commonality and the Democratic Potential of Audio Tools

Central to an understanding of the terms ‘exclusivity’ and ‘community’ is the concept of commonality as coined by Théberge. He suggests that commonalities play an important role in the relationships that characterise the audio technology domain, stating that ‘commonality’ in this context ‘boils down to the possession of technical equipment’ (1997: 136). He elaborates: ‘Factors such as the relative cost of equipment, the level of knowledge required in its use, and modes of interaction ... determine the degree of exclusivity exhibited in any medium’ (ibid.). Tomaz de Carvalho offers a similar observation, suggesting that ‘being a home recordist requires at least the acquisition of technology, of knowledge and the delimitation of some space at home’ (2012). Whilst this understanding of commonality is useful in establishing a frame for further interrogation, there are limits to its potential application. By drawing upon the work of Foucault and applying methodologies from SCOTS, I contend that the cumulative co-construction of users and technologies serves to perpetuate a discourse within which knowledge, just as much as product ownership, functions as a means of exclusion. In doing so, I also present a brief genealogy (in Foucauldian terms) of audio technology, offering ‘a form of history which can account for the constitution of knowledges, discourses [and] domains of

objects' (Foucault 1977: 117). By aligning social constructivist theory with this concept, one can begin to map a form of audio technology history and its associated discourse, that informs one as to the knowledge and power structures that regulate the conduct, formation and exclusion of its subjects.

Concerning the necessary possession of technology for participant 'commonality', Théberge draws attention to technology's supposed democratisation. He observes that 'there has long been a tendency to equate simple technical improvement or the increased distribution of consumer goods in capitalist society with greater levels of freedom and democracy' (1997: 72). Taking this as a point of departure, Théberge explores what he describes as the 'democratisation' of technologies, identifying several key factors as facilitating technological proliferation and accessibility. Firstly, it is suggested that cheaper technologies broaden or expand 'the lower part of the price pyramid' (1997: 73). Secondly, Théberge cites the use of prefabricated sound samples as simplifying the operational characteristics of certain audio technologies, thereby 'eliminating the need for musicians to become proficient programmers' (1997: 74). However, Théberge acknowledges that an ability to programme nevertheless functions a significant factor in determining one's admittance to the domain, due to its functionality 'as a status symbol' (1997: 76). Consequently, a dichotomy can be seen as being perpetuated whereby wider domain access is granted through technology's decreasing costs, but only on the basis of a dominant prescriptive model that privileges the knowledge of a select few. Therefore, whilst the factors identified by Théberge can be interpreted as facilitating a breakdown in barriers to the audio technology domain as specific knowledge is no longer *necessary*, a hierarchical ordering of subjects is perpetuated that facilitates exclusivity due to its inscribed *preference*. The users of prefabricated samples (in the example given by Théberge) are not privy to the knowledge deemed necessary to programme from scratch, and are therefore always subject to the texts as prescribed by the creators. The fact that the so-called 'democratisation of technology' does not equate to a democratisation of relevant skill sets is further covered in Bennett (2012c: 139), and serves to demonstrate that the very concept of democratisation is fraught with complexity.

The concept of 'democratisation' has also been explored by Bennett (2012c), Homer (2009: 90), Heward (2009: 14) and Barber (2012). The latter suggests that digital audio workstations (DAWs) have been 'transformed from a high price commodity operated by experts, to an accessible form of technology ... this

widespread democratisation of recording technology has come about because of cheap digital memory, miniaturisation, and the increasingly globalised economy' (Barber 2012). Democratisation is presented here as an increase in 'accessibility', with technological progress and price reductions seemingly facilitating broader access to audio technology communities. I argue, however, that this perception is too simplistic, not least because it fails to recognise participant exclusion in a capacity informed by social constructivist methodologies and thus neglects the agency of domain participants. In other words, whilst cumulatively constructed, modern, digital tools may make it possible, as Albin Zak has observed, to 'work in solitude, without the kinds of social interactions usually inherent in music making' (2007b), there remains a prerequisite level of knowledge that must be successfully understood and navigated in order for one to participate. This is borne out in Barber's statement, where audio 'experts' are juxtaposed against the wider globalised market. Zak further suggests that massified tools such as digital audio workstations offer the possibility to 'contradict one of the sturdiest historical generalisations one can make about record production: [that] it was always a collaborative process interfacing the skills and sensibilities of musicians, songwriters, arrangers, engineers, and producers' (2007b). Here, Zak fails to acknowledge that domain participants must acquire a level of proficiency that is comparable to the aforementioned roles as a means of engaging in both discourse and practice. The democratisation of audio technology then would be better described as, what I term, *massification* in that audio devices are now more widely available, but nonetheless perpetuate an exclusive, and often hierarchical, discourse.

In his seminal work on power and discourse, Michel Foucault acknowledges that an interrogation and deconstruction of power relations must always be 'kept subordinate' to the interests of the market economy within which new technologies are sold (Foucault 1977: 116). Building upon this concept, I contend that 'democratic' audio technologies are in fact only reproducing the power relations already in place, in that the principle of profit is implemented to widen the market availability, but not to challenge the power relations that the disseminated technologies and their associated discourse arguably perpetuate. Hence, the popular expression of democratisation must be considered inadequate. In its place, I suggest the more useful term *massification*, as audio technology availability has certainly extended, but the associated communities have largely remained

demographically homogenous as I demonstrate throughout the thesis. In discussing the relations of power that characterise the discourse of home recording, Alice Tomaz de Carvalho has astutely observed how the democratic potential of audio technologies is perpetually undermined by an institutional emphasis on consumption, substantiating Foucault's argument. On this point, she writes:

'Home recording seems to have rendered music recording democratic only for those to whom the discourse is addressed. Musicians and recording aficionados who don't have the access to technology, knowledge and even to a private space at home are disregarded when the notion of "democratization" is enunciated within the discourse. This suggests that *democracy* might be intrinsically linked to and dependent on *consumption*, be it of gear, specialized media, the service of tutors or the rental of rooms in big studios. The term's enunciation thus functions as a way to reinforce and legitimize the elitist, limiting and excluding aspects of the discourse, instead of carrying with it a notion of equity to home recording' (Tomaz de Carvalho 2012).

Whilst the work of Tomaz de Carvalho focusses specifically on the perceived necessity of consumption as a means of critiquing democratisation, I rather suggest, as an original contribution to knowledge, that an adherence to a normative, masculine performance that stresses gear fetishism as a form of consumption, results in both the material and discursive exclusion of recordists who fail to conform to this narrow specification. I argue that audio technologies, in common with discourses and texts, are produced and reproduced through the correct application of what Foucault has called the 'enunciative function' (1997: 88), which is to say that their production and perpetuation is dependent upon a participant's articulation of domain specific knowledge. If a participant fails to enunciate 'correctly', they are marginalised and rendered invisible as will be explored in the following chapters. It is, however, also important to recognise that massified audio artifacts can facilitate the creation of dedicated physical and discursive spaces that allow for the *potential reinscription* of the dominant enunciative function (see also Chapter Six). Thus, following Foucault's theory, power cannot only be exercised by the dominant, but can also be harnessed as a productive force of resistance by the deviant, and thus marginalised, participants. As Foucault states:

'What makes power hold good, what makes it accepted, is simply the fact that it doesn't only weigh on us a force that says no, but that it traverses and produces things, it ... forms knowledge, produces

discourse. It needs to be considered as a productive network which runs through the whole social body, much more than as a negative instance whose function is repression' (Foucault 1977: 119).

I suggest that by investigating perceptions of audio technology, its origins and its associated discourse as informed by the theorists and methodologies outlined in sections 2.2 and 2.3, (as well as the work of Foucault), it becomes possible to observe the rules of engagement and mediations of power that facilitate participants' respective commonalities or their exclusion. I suggest that by acknowledging a cumulative co-construction process, one can better determine the factors that have sustained barriers to participating in the audio technology domain via an implicit prerequisite of knowledge symbolically, operationally and discursively.

2.5 Navigating Discursive Bias

The origins and development of audio technologies are often discussed within academic literature as linear histories, with users (recordists) and artifacts (technologies) portrayed as singular agents of change (Morton Jr 2004; Jones 1988: 21). This is problematic, as there often exists an implicit textual bias with respect to the balance and influence of these two subjects in relation to domain practices, artifact construction and discourse (Heward 2009; Negus 1992). In other words, authors tend to afford a greater sense of agency to either technology or the user in the historical development of audio artifacts, the working methodologies adopted, or the nature of community engagement. In this context, Oudshoorn and Pinch have suggested that 'users and technology are too often viewed as separate objects of research' (2005: 2). It is therefore important to approach the existing literature with this in mind, as a means of negotiating potential bias with respect to the attribution of agency. In his consideration of audio technology histories, Sterne has suggested that 'an examination of sound technologies also cuts to the core of the nature/nurture debate in thinking about the causes and possibilities for historical change' (2003: 7-8). Sterne's conception of cause and effect is problematic, however, in that specific temporal instances are suggested as dictating change and thus in establishing linear historical narratives devoid of greater complexity. The utilisation of a SCOTS approach towards navigating histories circumvents this linear rigidity to a certain extent, by seeking to instead examine the mediation and navigation of 'borders' between the various agents of change (Bijker and Pinch

2012: xix). In examining these borders, I am primarily concerned with how the aforementioned participant 'commonalities' are established and mediated, as well as the exclusion of those who fail to enunciate 'correctly' following Foucault's concept of the enunciative function (1997: 88).

As changes in recording technology have occurred over the past century, the associated academic literature has altered accordingly, and often presented conflicting and often polarising arguments as to the potential implications of its use (Heward 2009; Negus 1992). What have emerged are discourses of advocacy, passivity and hostility towards recording technology and in particular, what was historically seen to be a shift away from its traditional role as a passive, subservient technology towards what Schlem has called a 'functional interpenetration of art and technology' (1982: 151). These discourses typically began to present themselves in the early twentieth century within the field of audio theory, where technology was traditionally treated as a discrete discipline and thus divorced conceptually from music and other art forms. However, the imminent convergence of commercialised music and cutting-edge technology provoked utopianists³ and pessimists alike to begin considering the implications of audio production augmented by mechanical and electrical processes, thus contributing to one of the longest running and most significant debates concerning audio technology and its use.

The debate concerning audio technology, as Negus recognises, has a tendency to focus on 'the sharp division ... between pessimistic techno-phobes who condemn technology for contaminating the authentic character of human expression and corrupting musical skills, and optimistic techno-euphorics who have celebrated the "appropriation" of technology in the act of consuming commodities' (1992: 20). This is a particularly astute observation that usefully epitomises a significant series of debates and accounts of audio technology that have occurred since its inception. These perspectives feed directly into notions of agency concerning user and technology construction where, more often than not, the idea of 'co-construction' as termed by Oudshoorn and Pinch (2005) fails to be identified and instead, a simplified cause and effect history of audio technology is established. This is especially problematic when one begins to question the exclusion of participants within audio technology discourse, as the complex interplay that exists between different parties is often overlooked.

³ As distinguished from 'optimism', particularly digital optimism, as described by Nicholas Negroponte (1995: Epilogue).

Fundamental in understanding the debates considered from hereon onwards is the concept of mediation, in particular how discourses surrounding audio technology have been influenced by technological mediation in concurrence with the establishment and widespread adoption of machines and labour saving devices in industry (Negus 1992). Attention is paid to how representations and definitions of audio technology altered in step with technological mediation, and how users also influenced audio technology as part of a cumulative co-construction process. In order to examine these concepts fully, it is useful to turn one's attention to a historical example at this point. In doing so, however, it is equally important to avoid telling a 'prominent origin story' that, as Tara Rodgers has warned, has the potential to establish discursive and material precedents (2010a: 6). More than this, she argues, 'origin stories tend to normalize hegemonic cultural practices that follow' (ibid.). In assessing discursive bias then, it is important to consider a means of deconstructing user and artifact co-construction, without reinforcing or reinscribing these very same narratives. In discussing the pitfalls of linear histories with respect to audio technology Rodgers draws attention to the work of Luigi Russolo, in particular his famous futurist manifesto *The Art of Noises* (1913), the themes of which, she argues, 'seem to flow naturally into ... colonialist discourses, ... sexist imagery [and] militaristic language' (Rodgers 2010a: 6). It is these very same tropes that I suggest have become cumulatively inscribed into contemporary audio discourse through the interdependent development of users and technology (see chapters three through six). By introducing methodologies from SCOTS, as outlined earlier in section 2.3., I explore the normalisation and re-inscription of these discourses and, furthermore, account for a perceptible reliance upon utopianist, determinist and pessimist perspectives as a means of relating audio technologies mediative potential.

Luigi Russolo's manifesto examines in detail the concept of noise as music and draws comparisons between the rise and multiplication of machines and the increasingly dissonant and harmonically complex aesthetic of art music. At the heart of Russolo's manifesto is the concept that, as a result of rapid industrialisation, traditional musical sounds are no longer relevant to a modern listener: 'the machine has created such a variety and contention of noises that pure sound in its slowness and monotony no longer provokes emotion' (2004: 11). From this we can discern that Russolo recognises a configuration of users as occurring as Woolgar has suggested (1991) as well as an alteration in 'script', that is, technology enabling or

constraining the actions of users (Akrich 1992: 208). In other words, a mediation with respect to user perception of sound is presented as having occurred in parallel with the pace of technological change. Russolo thus affords a great deal of agency to technology, over and above the possible influence of human mediation. His bold introduction solidifies this notion, as he states that 'in the 19th Century, with the invention of machines, Noise was born. Today, Noise is triumphant and reigns sovereign over the sensibility of men' (2004: 10). Whilst Russolo's manifesto is primarily concerned with noise rather than audio technology specifically, it is important to note that he often represents the former as being sound that is mediated through technological innovation and industrial design. Whilst the acknowledgment of this mediation confirms the necessity of human participation and agency, Russolo prefers to instead champion noise as a product of industry and nature, and in doing so diminishes the role of human participation. What this results in is therefore an implicit textual bias that prioritises technology over the potential agency of humans and thus evinces a stance of technological determinism as coined by Veblen.

In discussing the futurist's unconditional espousal of technology, Negus disputes such a one-sided stance, stating that 'technology has never been passive, neutral or natural. Music has, for centuries, been created through the interaction between art and technology' (1992: 31). This perspective not only acknowledges the mediation inherent to audio technology, but also establishes an awareness of the co-construction of users and technology as noted by Oudshoorn and Pinch (2005). Milner, in a similar vein, advances a view that confirms the importance of recognising user agency, drawing attention to the impossibility of abstracting the human from technological design and mediation. In this context, he suggests that:

'If recordings are considered to be primarily works of art, they can signify as such only by using the prevailing technological tools of their age. If recordings are considered primarily as products of technology, science and industry, they can be evaluated only subjectively - that is, as artworks - because what they produce is so abstract and illusory, mere pressure changes in the air' (Milner 2009: 22).

In a lecture given in 1939, Edgard Varèse conveys a similarly deterministic attitude towards audio technology that, like Russolo, praises the potential of new audio tools to alter compositional approaches, whilst failing to assert user agency as

a significant component of the mediation process. Specifically, Varèse attributes sole agency to technology in line with what Akrich has termed 'script' and, furthermore, as facilitating what Moorefield has described as a shift in recordings metaphor towards the 'reality of illusion' and the 'virtual' (2005: xiii), offering 'liberation from the arbitrary, paralyzing tempered system' as well as 'new harmonic splendors ... all of these in a unit of measure or time that is humanly impossible to attain' (Varèse 2004: 20). By asserting the infeasibility of achieving these shifts through human agency, Varèse positions technology as dictating script and so can be said to confirm Woolgar's theory of user configuration. With the permeation of electronic technology into the field of recording and reproduction however, specifically the ubiquitous adoption of magnetic tape, a change can be observed with respect to textual bias that acknowledges the potential mediation of human agency. This is confirmed by Varèse in *The Electronic Medium* (1962) in which he states that 'Composers are now able ... to satisfy the dictates of that inner ear of imagination' (Varèse 2004: 20). One can observe a shift occurring in the attribution of agency from technology to the human here. However, Varèse goes on to assert that human preconditions to 'esthetic codification' (ibid.) inevitably result in the construction of technologies with the capacity to dictate standardised working methods that he attributes to a 'musical mortician' (ibid.). Here, Varèse begins to acknowledge the agency of humans, albeit in a capacity that displays a notable discursive bias.

In contrast to the aforementioned deterministic discourses, there also exist those that display a sense of pessimism towards massified audio artifacts. In analysing this textual bias, Simon Frith has recognised that the 'implication that technology is somehow false or falsifying' (1986: 265-66) has been a recurring response to technological change and advancement within the audio community since its emergence. Negus (1992) has similarly noted the prevalence of this discourse and cites its establishment as dating back to mass culture critiques of the 1920s, in concurrence with the creation of infinitely reproducible audio media. A sense of pessimism then, can be considered to have developed in reaction to audio technology's inability to abstract what is often considered as an artistic endeavor from technological mediation. It is arguable, therefore, that techno-pessimist discourses were materially inscribed as early as the 1890s due to the invention and dissemination of Emile Berliner's musical disc, and with it, communal listening parlours that challenged conventional perceptions of musical listening experiences

(Fischer 2012; Morton Jr 2004). When assessing discursive bias, however, it is essential that one bring into question simplistic cause and effect narratives, such as that of Negus (1992), that often normalise the significance of users or artifacts in the complex mediation process.

The longevity of such simplistic discourses has been well documented, with Zak (2012) investigating the polarising utopianist and pessimist perceptions of audio technologies up until the 1960s, and Bennett recognising their perpetuation throughout the 1980s alongside the increased massification of audio tools. On this point, she states:

‘The AES [Audio Engineering Society] embraced the technological changes in the 1980s; enthusiastically reporting on each and every incremental technological development ... The antithesis was perhaps the reaction of the musicians union, who saw the prefabricated banks of sounds within digital synthesizers as a threat to “real” musicianship ... It might be argued that those crying “revolutionary” were somewhat deterministic in their viewpoint; that these new technologies would transform the recording and production landscape, signifying great progress and development for the better of the industry. Perhaps those crying “sacrilege” to a degree exhibited technological pessimism; that notions of creativity, talent and skill were at risk of being flattened under what appeared to be technology’s interminable snowball’ (Bennett 2009).

As Bennett has astutely recognised however, notions of pessimism and determinism often belie a greater complexity with respect to the discourses, opinions and working methods of the practitioners involved. She continues: ‘Notions of rebellion, nostalgia and intention were arguably greater influences on [recordists] working practices than simply pessimism’ (ibid.). It is therefore imperative that one not only interrogate the literature for discursive bias, but also the working practices of recordists themselves as a means of understanding this complexity. The following section is therefore concerned with interpreting the development of audio technologies through recordist working methodologies. In doing so, discursive modes of participant exclusion as components of recording practice are investigated by drawing upon concepts of tacit knowledge and domain acquisition as proposed by Horning (2004a), Thompson and McIntyre (2013).

2.6 Recording Practices

It has been widely documented that during its infancy, the practice of audio recording was based upon a working methodology concerned with the accurate distillation of live audio into a repeatable medium (Moorefield 2005; Horning 2004a; Morton Jr 2004; Katz 2004; Gronow & Saunio 1998). Sound, once captured, was rarely manipulated and served largely as an audible record of events. Moorefield has suggested that 'recording itself was initially a rather cut-and-dried affair' (2005: 1). Frith has similarly recognised this methodology as a standard industry practice, stating that 'recording was, in its early days, simply that: the direct recording onto a cylinder or disc. What record buyers heard was the sound of the original performance' (1983: 47). Moylan has therefore suggested that the only desirable aesthetic was deemed to be an accurate, 'transparent' (Moylan 1992: 81) transfer from live sound to a reproduction. By extension, this reproduction allowed for, (*pace* Walter Benjamin), the placement of a 'copy of the original into situations which would be out of reach for the original itself' (Sterne 2012: 221).

The origins of recording practices in recorded music have been traced back to several defining factors by authors within the associated literature: primarily, the limitations inherent to the available recording technology, as well as the style and content of the music being recorded (Katz 2004; Moorefield 2005). I contend that by examining a *process* (e.g recording practice) rather than simply the users or technologies involved in the creation of a recording, it becomes possible to explore the power relationships and notions of agency that so often colour academic perceptions of audio technology use. By this, I mean to suggest that process, being at the junction or 'border' of both the technology and the user, is useful as an analytical space for exploring texts that frequently demonstrate deterministic or pessimistic inclinations. On this point, sociologist Edward Kealey (1979) has identified three 'modes of collaboration' between the recordist and the technology being used, which serve as useful tools in navigating user/technology borders.

The craft union mode, Kealey states, was the principle that guided all musical recording immediately after the Second World War. He expresses that, at that time, studio practice was 'governed by a utilitarian preoccupation with capturing the sounds of performance' (1979: 8). It is worth pointing out here that the craft union mode is fundamentally different to what is typically labelled 'phonography'. Often articulated as a neologism for field recording, phonography is primarily concerned with the accurate capture of a wide variety of sounds outside of a traditional recording studio environment. The De Montfort University Music,

Technology and Innovation Research Group project EARS offers the following definition of field recording:

‘Any sound recording created away from the studio in a specific space or sonic environment. The aim of field recording might be to capture a particular element of this space (as is the case, for example in documentary nature recordings), or to capture the totality which may be thought of as soundscape, auditory scene, or ambience. Field recording may also be referred to as “on-location recording”; however this term is also used to describe commercial recording of performances in specific venues and acoustic settings. Field recording is integral to Soundscape Composition’ (EARS 2002).

The pioneering work of Murray Schafer collected in *The Soundscape: Our Sonic Environment and the Tuning of the World* (1993) can be considered as a culmination of much research dedicated to topic of phonography and field recording since the 1960s (Wrightson 2002). Located within the field of acoustic ecology, Schafer argues that soundscapes serve to mediate between the listener and the environment but are traditionally focussed on recording spaces outside of the recording studio (1993). Within the context of Schafer’s work, music is thus termed as a virtual soundscape (see also Moorefield 2005) and so is inappropriate for the purposes of this research project. The methodologies inherent to field recording and soundscapes have also spread to the music sector, as a consequence, the terminology has become increasingly more complex. Thus whilst phonography and the craft union mode are both concerned with accuracy and transparency, these methods differ in the locations of the practices themselves. Within my own research, the craft union mode is implemented as a term for comparable recording practices taking place within private spaces, such as the music recording studio.

It is arguable that one could extend the craft union mode even further backwards, prior to the Second World War, to the development of the cylindrical phonograph by Thomas Edison (1876), as this was the first device used to capture and, most significantly, playback music with minimal post-production. The phonograph can thus be considered as embodying the craft union mode as, aside from its rather difficult calibration process (Morton Jr 2004: 11), the device offered the recordist very little manipulation of the audio recording or playback processes. In contrast, Susan Horning has suggested that audio technology inevitably requires the intervention of a recordist, and thus always results in the mediation of a recording. As a consequence, the borders between technology and users have

consistently been challenged, even within the earliest applications of audio technologies. She states that:

‘capturing a live performance on cylinder or disc required subtle manipulation of the recording equipment by the operator, even where there were few possibilities for manipulation. In fact, one can say there has never been a recording that did not require some intervention, although the degree of intervention varied widely, from a touch of “echo” to assembling a recording from multiple edited performances. Until the middle of the last century, when recording had surmounted most of the problems with quality in the early years - the tinny sound of acoustical recording, scratchy shellac records, limited frequency response - the goal in making records had been to capture the live performance’ (Horning 2004a: 704).

What is suggested here is that the potential for manipulation and editing is one of the fundamental ways in which the navigation of borders between agents occurs. Considering that recorded sound is in fact mediated sound (Suisman 2010: 3), then it is through mediation that the articulation of agency is achieved. Frost has suggested that even with limited control over recording technology, users are able to mediate sound just as potently as the limitations of the technology itself. He states that ‘in a sense, we have been editing since the dawn of recording. Even with wax cylinders we could give ourselves the luxury of two or three “goes” and then choose the best one – which is a simple, but nevertheless very powerful, form of editing’ (Frost 2007).

Expanding upon this concept somewhat, Horning addresses the cumulative development of audio technology through the topic of engineered recordings. She suggests that the mediation or ‘engineering’ of recorded sound ultimately results in cumulatively constructed audio technologies, stating:

‘recorded performances have always been engineered, even before the people operating the controls were referred to as “engineers”. Also surprising is the degree to which the field [audio technology] has retained elements of art and tacit knowledge that were essential to the work of early recordists, even as recording technology has been developed to rationalize and systematize that work’ (Horning 2004a: 704).

The cumulative co-construction (Oudshoorn and Pinch 2005: 2) of users and audio technologies is inadvertently acknowledged here, by exploring the mediative potential of the recordist and the systematisation of their actions. Technologies can

therefore be said to embody the past and present mediations of both human and nonhuman agents, just as recording practices are mediated by the potential of the technology being used. Central to Horning's original argument is the concept of tacit knowledge, that is 'the unarticulated, implicit knowledge gained from practical experience' (Horning 2004a: 707). Reference is being made here to recordists' as a group and specifically the knowledge they exercise as a component of the aforementioned mediation process. Knowledge thus remains essential as a 'commonality' (Théberge 1997) in order for one to participate within the audio domain and the surrounding communities. Indeed, Horning recognises that above all, recordists require and exercise knowledge as a component of their work. She states:

'recording engineers deploy a working knowledge of the behaviour of sound and the machinery of its propagation. In the acoustical recording era, this meant familiarity with every aspect of the recording apparatus as well as with sound. This was their working knowledge, gained from experience. After the introduction of electrical recording in the mid-1920s, recordists had to acquire some understanding of electronics and electrical systems, and this had to be learned on the job as well' (Horning 2004a: 707-708).

There are, however, limitations to Horning's argument, in particular with respect to the concept of tacit knowledge outlined above. In contrast to Horning's assertion that knowledge is gained through experience and remains fundamentally implicit and unarticulated, I suggest that it is exactly the enunciation of 'common' knowledge that establishes domains and communities in the first instance. Admittance to these communities is then based on adherence to a normative enunciative function, that is rigidly policed by audio practitioners (see chapters three to six). Horning does however recognise the potential for knowledge to function as a means of exclusion, in that specialist information is cherished and protected by those privileged to understand its merit. She suggests that:

'No operations manual provided guidance, and the hard-won methods remained highly individual and closely guarded secrets of each recordist. ... Although recordists maintained secrecy about their techniques as well as their technology, knowledge was shared within recording departments much as it was within the apprenticeship system and "shop" culture of the early mechanical engineering firms' (Horning 2004a: 707).

Extending Horning's argument, the works of Thompson et al (2013), Tomaz de Carvalho (2012) and Heward (2009) have acknowledged that although fields such as audio technology necessitate the articulation of a more specialised discourse, it is through the guarding and insulation of users' practices that barriers to entry have been established and perpetuated, often over and above the specificities of the technology itself. I contend that the practice of 'shop-talk' is representative of a discourse of privilege and exclusivity, in that trade secrets, as well as an enunciative function, are protected from those considered to be external to the discipline. This practice succeeds in isolating recordists and, furthermore, establishes an internal dichotomy between the amateur and professional rooted in the 'correct' application of this enunciative function.

In discussing the home studio enthusiast, Tomaz de Carvalho (2012) similarly argues that knowledge is held hostage by professionals, and wielded as a means of securing entry to the audio domain. She suggests that 'professionals have the authority to function as gatekeepers, limiting what is done, by whom and how' (ibid.). Both Thompson (2002: 237) and Heward (2009: 14) have acknowledged the establishment of a dichotomy rooted in conceptions of both the amateur and professional recordist that differentiates based on knowledge, specifically technical knowledge. The following chapters deal in depth with the hierarchical stratification and exclusivity of the audio domain, and additionally present an understanding of the professional and amateur dichotomy as recognised by Tomaz de Carvalho (2012). A more detailed analysis of these concepts is therefore beyond the scope of this chapter. However, when considering the cumulative construction of users and technology, of particular interest are the implications of recordists' actions/inactions for the existence of such a dichotomy. At this point in the thesis, it is therefore useful to present an understanding of how knowledge is acquired and furthermore, what knowledge consists of within the audio technology field, specifically as a component of recordist practice. Later chapters of the work interrogate methods of knowledge dissemination as components of community interaction within print media and physical institutions as a means of representing the cumulative co-construction of users and discourse.

Thompson and McIntyre suggest that specialist disciplines necessitate 'domain acquisition', that is: 'learning the knowledge, rules, skills and techniques that make up the content of a particular domain' (2013). In the case of recording practices, knowledge has been positioned within the associated literature as

practical and often technologically mediated (Heward 2009; Frost 2007; Moorefield 2005). In contrast, Horning has stated that, early on, recordists were 'systematic tinkerers and mechanical engineers; those who began during the era of electrical transcriptions were radio hobbyists who built their own crystal sets and learned electronics on their own' (Horning 2004a: 721). Considering this, one can then determine that both technological understanding as well as recordist agency formed a conception of knowledge that must be successfully understood in order to participate within the audio field. This is a view supported by Milner (2009) and Morton Jr. (2004) who similarly position a proficiency in applying and mediating technology as maintaining barriers to participation. Draper, in contrast, has identified knowledge acquisition as the fundamental means of engaging with early recording practices, suggesting that the exclusivity of both recording practices and the domain itself were solidified through the concept of the 'Tonmeister'. Reflecting on this point, Draper explains:

'The Tonmeister concept (literally, "sound-master") was proposed by Arnold Schoenberg in 1946 as a way to train (sic) "soundmen" in the fields of recording, radio and film. First introduced in Germany in the same year, the word *tonmeister* was later trademarked by the University of Surrey in 1986 ... From out of this tradition, a systematised regime of listening exercises emerged to provide increasing levels of difficulty in identifying frequency bands, levels and their interrelationships for the trained sound engineer' (Draper 2013).

Formalised education such as this, along with the attribution of a distinct title can then be considered to have the effect of engendering impediments to participation to those outside of the privileged minority. In this way, knowledge can be considered a significant component in establishing a hierarchically stratified dichotomy as Tomaz de Carvalho has suggested (2012). In addition, a recordist's ability to build, fix, modify or tweak (Heward 2009: 14; Haring 2007: 68-69; Horning 2004a: 721; Horning 2000: 101) has also been observed, with hands on modification resulting in a form of appropriation. In this way, recordists are able to not only establish a more thorough understanding of their equipment, but also exercise this knowledge as a means of asserting authority and power (Tomaz de Carvalho 2012). These concepts are explored in greater depth in the following chapters, but remain useful points of departure here in order to frame a discussion of cumulative co-construction

with regards to how the knowledge previously described becomes embedded as components of technological artifacts.

Sterne argues in *The Audible Past* (2003) that methods of transduction⁴ present within technologies such as radio, hifi and most notably, microphones, have been read backwards to the very nature of hearing. Building upon this concept, Stefan Helmreich suggests that 'transduction is now imagined as a universal infrastructure for a range of cultures of hearing' (2012: 170). One might consider it equally valid to read methods of transduction *forwards*, and thus as having the capacity to mediate technological design. Conceptually, this encapsulates the cumulative construction of technologies, in that transducers such as microphones and loudspeakers can be said to be replicate the fundamental principles of human sound production and reception (Katz 2004: 43; Sterne 2003). This is especially true when one considers that loudspeakers are considered to have an optimal frequency response when representative of the full range of human hearing (20Hz-20kHz). Assuming a social constructivist approach, the design of transducers can thus be seen to be socially constructed as the borders between the technical and the social are continually being navigated (Bijker and Pinch 2012: xvii). This is not to suggest, however, that cumulative technological design is rooted purely in the manifestation of human mechanisms and abilities, but rather that knowledge functions as an appropriate mediator. As Horning has noted, however, the manifestation of human skills as technological components is a common occurrence. In this context, she explains that 'the latest equipment is designed to increase the available options to the user, most often by performing tasks that once required human ingenuity and skill' (Horning 2004a: 722). The suggestion here that technology comes to embody the skills of recordists then evidences a cumulative development process. It is important to also recognise that this mediation process is fundamentally interdependent and thus functions as a persistent, two-way exchange (Mackay et al. 2000: 752; Katz 2004: 3).

Equally important in understanding the cumulative co-construction of technology and users is the dependence on the musical performances being

⁴ Transduction is the process of converting a signal from one form of energy to another. For example, loudspeakers process an electrical signal by turning current into the motion of a diaphragm. Miles Huber offers the following definition: 'a transducer is any device that changes one form of energy into another corresponding form of energy. For example, a guitar is a transducer in that it takes the vibrations of picked or strummed strings (the medium), amplifies them through a body of wood, and converts these vibrations into corresponding sound-pressure waves...which are then perceived as sound' (2005: 29).

recorded, and the mediative potential of performers themselves. Morton Jr has recognised that, historically, artists were often forced to alter their performances in a way that complemented recording technology (2004: 141). Citing the phonograph as an example, Milner similarly recognises that technical limitations led to a change in performance practice. He states that between 1915 and 1925, Edison performed 'realism tests' that challenged an invited audience to distinguish between live and recorded sound (Milner 2009: 7; Katz 2004: 23). Interestingly however, these concerts relied heavily on deception as a means of promoting the phonograph technology, requiring 'real effort by the performers to maintain the illusion that the machine was dominant' (Milner 2009: 7). Milner continues, stating that 'the phonograph had begun as a means to document a musical performance, to offer a representation of the "real", but Edison was telling the world that this equation no longer held. From now on, recordings would not sound like the world: the world would sound like recordings' (ibid.). Milner offers a view of the phonograph as being fundamentally restrictive, in that it required artists to compromise their natural performances to meet the limitations of the technology. In this respect, one can then consider technology as defining the behaviour of the recordist and thus fulfilling Woolgar's theory of user configuration (1991). More than this though, it appears that Milner's portrayal of the 'phonograph effect' (Katz 2004) in this instance would facilitate a fundamental shift with respect to what audio technologies began to represent. Conceptually, this is in agreement with one of the primary themes of Moorefield's work, where it is suggested that 'recording's metaphor has shifted from one of the "illusion of reality" (mimetic space) to the "reality of illusion" (a virtual world in which everything is possible)' (2005: xiii). In this context, recording's metaphor conflates with the notion of script advanced by Akrich previously assessed in section 2.3. Here, Akrich suggests that script 'defines a framework of action together with the actors and the space in which they are supposed to act' (1992: 208). Milner's statement then arguably establishes aesthetic expectations of the phonograph and thus similarly, a framework of action for the relevant agents. Assuming a SCOTS approach to the literature, the work of both Milner and Moorefield can then be aligned with that of Mackay et al. (2000: 752) and Katz (2004: 3), to present a concept of both human and nonhuman mediative potential as key factors in the cumulative construction of technologies and users.

Edward Rothstein has similarly recognised the significance of understanding user and technology co-construction, suggesting that through the proliferation of

recordings, audiences and recordists alike develop a 'language of recording' (1985: 32). More specifically, a language that allows listeners to translate and situate audible sounds in an implied acoustic space, 'mapping the heard sounds into a real world' (ibid.). It is important to recognise that this is not a language in a discursive sense, but rather an ability to interpret complexities in recorded audio. Elaborating on this concept, Moorefield suggests that 'as the cultural ear becomes more familiar with what is possible, it is able to distinguish between different levels and styles of production, and becomes more aware of the production aspect of a track' (2005: xvi). Milner also discusses this concept, citing the significance of recorded audio over its live counterpart in modern perceptions of sound as a catalyst for change, suggesting that 'the world is saturated with recordings. If you live in a society that is semi-industrialised, recordings define the sound of your musical world' (2009: 12). Eisenberg similarly cites the 'reification of music' (2005: 13), and thus a familiarity with recorded audio formats, as cause for change. What these perceptions suggest, is that users, like technology, are cumulatively constructed through the mediative potential of audio tools. Both Rothstein and Moorefield position a shift in listener's audio sensibilities as occurring, acknowledging the concept of user configuration as suggested by both Woolgar (1991) and Mackay et al. (2000). Milner and Eisenberg similarly reflect upon this change, citing the spread of audio artifacts as normalising the aesthetic values of recorded sound.

The literature surveyed thus far is therefore indicative of user and technology co-construction, with recording practices mediating recordists, performers and listeners alike. In addition, these very same agents can be said to mediate the construction of audio tools, their applications and the surrounding discourse. As my research into SCOTS has demonstrated, it is of the utmost significance to navigate textual bias with respect to questions of agency, and thus as a means of better understanding how the borders of these agents are consistently being navigated and re-drawn. Whilst this section has uncovered how the early co-construction of users and technology led to both technological and social changes as part of a cumulative development process, it is useful at this point to begin investigating further evidence of cumulative developments within the audio technology domain.

2.7 Cumulative Technological Design

The following section briefly explores how the development of new audio tools was informed by technological precursors and challenged established working practices as well as perceptions of knowledge within discourse. Drawing upon the work of Bennett (2012a), Barber (2012) and Marrington (2011), I investigate the introduction of magnetic tape through to digital audio workstations using SCOTS methodologies. In doing so, I contend that perceptions of recordist knowledge and recording practices are cumulatively constructed. Whilst an exhaustive consideration of socially constructed audio technologies is beyond the scope of this work, the mediative potential of both technology and recordists is explored in parallel with notions of agency.

Edward Kealey (1979) has suggested that the introduction of magnetic tape⁵ facilitated the establishment of the 'entrepreneurial engineer', an empowered recordist with fewer technical responsibilities, greater editing potential and increased flexibility in the recording process. With less emphasis being placed on technical correctness, Kealey argues that recordists were afforded more creative freedom. Evan Eisenberg has similarly recognised this trend and establishes the label 'phonography' in *The Recording Angel* (2005) to articulate what he observes as a transition from methodologies concerned with transparency to more artistically considered mediation processes. He suggests that, now, the 'artist-producer, the musical creator ... plays a central part in the development of phonography as an art' (2005: 128). Morton Jr has similarly identified the introduction of magnetic tape recorders and the ease of editing they afforded as instrumental in facilitating this transition, he states:

'tape recorders reshaped sound in many ways. At first the quest for musical perfection led almost inevitably towards an ever-greater interest in editing as a way to correct performance errors. But at the same time that editing improved a recording, it also took it farther from its origins as a live performance. ... Editing and dubbing became less about "fixing" and more about creating something new' (Morton Jr 2004: 150).

The view presented here is one that sees technology as enabling, in that it becomes possible for the recordist to exercise more aesthetic freedom as a component of

⁵ In 1935 German engineering firm AEG manufactured the first magnetic tape recorder, (Moorefield 2005: 3) however it was not until 1948 that the medium saw widespread use and adoption within the recording industry (Morton Jr 2004: 117; Horning 2000: 101). The technology was quickly seized upon as it facilitated dramatic improvements in audio fidelity and was a far more cost effective medium than contemporary alternatives.

studio practice (Eno 1983: 57). Technological developments are thus positioned as facilitating abstraction from 'transparent' audio reproductions. Albin Zak has also recognised this, suggesting that the contemporary work of 'major labels represented a new kind of recording, which used the medium for creative ends. Their records had no real-world counterpart. They were one-off musical artifacts, whimsical studio concoctions' (Zak 2012). Horning expands upon this concept to some extent, arguing that postwar developments in audio technology design facilitated greater recordist creativity:

'No longer was the musical performance simply captured and preserved by recording technology; the technology itself had become integral to the creative process. This was neither the result of a single innovation nor a case of technological determinism. Actually, the history of recording studios – particularly in this postwar period – conjures up a ... model of cause and effect rather than a linear history of development. As new recording technologies gave rise to new norms of studio practice these, in turn, opened up even more possibilities for how sound – indeed what sounds – could be recorded and how music was created' (Horning 2000: 101).

Horning presents a case against discursive bias and determinism here by seeking to position the development of audio tools as a cause and effect process. As I have previously suggested, however, this is problematic as the relative complexity of the mediative process is overlooked. By this I mean to suggest that Horning often expresses conflicting perceptions of user and technology agency in dictating the changing working practices of recordists as well as technological functionality. For example, Horning suggests that engineers 'confronted the problem of variable quality and response' within microphone construction, and thus established a form of practice 'because of the inadequacies of related technology, specifically the uneven quality of microphones and noisy equalizers' (Horning 2004a: 711). It is therefore suggested that recordists were conditioned by the technologies of the period, assuming a cause and effect relationship that understates the significance of mutual co-construction. This can be interpreted as reflecting a 'framework of action' as termed by Akrich (1992: 208), in that technologies define the processes and extent of recordists' interactions. However, Horning also presents an understanding of recordists that privileges their technical knowledge: 'At the center ... were the users of recording technology who were

actively involved in improvising, modifying, adapting, and pushing the capabilities of the equipment available to them' (2000: 101).

Whilst Horning's overall argument might otherwise suggest an awareness of mutual co-construction as outlined by Oudshoorn and Pinch (2005: 2), by placing both recordists and technology at the epicentre of change, a fractured argument is presented. Human agency is depicted by Horning as the expression of technical knowledge, specifically the recordist's ability to modify, adapt and alter a technologies functionality. As I have previously suggested however, the necessity of knowledge to participate forms one of the fundamental barriers to participation and thus arguably succeeds in stratifying the community (Tomaz de Carvalho 2012; Heward 2009: 14; Haring 2007: 68-69; Keightley 1996). My earlier research concerning discursive bias has illustrated that criticisms of technology all too often rely upon simplistic binary categorisations (Bennett 2009; Negus 1992). It is often through the expression of bias, however, that concepts of knowledge are shaped and disseminated. With reference to the audio technology industry's adoption of magnetic tape, Zak argues that:

'Underlying the various aesthetic critiques was a remarkable adherence to the primacy of live musical performance and a refusal to admit that record making might be something different ... Record making, however, was seen not as an art but as a craft aimed at commercial distribution of existing music to a mass public. The chief focus of attention was not the record itself but the music—the piece, the song, the performance—that the record contained' (Zak 2012).

Zak's statement is not only representative of a contemporary pessimistic attitude towards magnetic tape technology, but more than this, the articulation of fears as to how the format's intrinsic malleability threatened to undermine recording practice as an engineering craft, thus displacing a hierarchical stratification rooted in knowledge dependency. Moorefield has recognised that recordist Mitch Miller 'was ambivalent at best about multi-track recording, faulting the modern processes of overdubbing and punching in as techniques which rob music of its spontaneity and vitality. [For Miller], modern recording processes such as editing, splicing, overdubbing, and remixing were a form of dishonesty' (2005: 3). The creative potential new technologies afforded were then similarly championed for the aesthetic possibilities they offered, but also criticised for endorsing what were perceived to be dishonest recording practices. For example, Glenn Gould famously

referred to tape splicing or editing as a 'dishonest and dehumanizing technique' (Cox and Warner 2004: 117). Negus critiques this tendency towards skepticism and discursive bias, arguing that musical composition and performance do not exist in a state of purity that is corrupted 'outside of its immediate realisation in and through particular technologies and techniques' (Negus 1992: 32). Instead, he positions audio artifacts as enabling new mediative opportunities that alter the 'existing relationships between instruments and ... the nature of musical skills' (ibid.). The argument supposing technology's ability to falsify, he notes, 'is not new and has recurred throughout the history of European music' (1992: 32-33).

The acknowledgement of persistent binaristic attitudes with respect to audio technologies is also reflected in the work of Bennett (2009), who similarly interrogates academic literature, as well as practitioner case studies in order to shed light on the complexity of this perspective. Bennett recognises the discursive tendency towards a dichotomy, in which a more mediated production aesthetic is often presented in opposition to the craft union mode. Reflecting on this point, she observes: 'Perhaps there was a link between technology-driven record production and the intention of "record making", as opposed to production that employed traditional method with older or vintage technologies with the intention of capturing songs or a performance' (Bennett 2009). Whilst Bennett's work is primarily concerned with aligning individual recordists' workflow decisions and their equipment choices, the conclusions drawn are comparable to those of both Zak (2007b) and Negus (1992), in that audio technology development is all too often viewed as occurring alongside the perpetuation of simplistic deterministic and pessimistic discourses.

Addressing the digital evolution of recording technologies and their associated working practices, Moorefield draws attention to the longevity of traditional recordist practices such as the craft union mode, suggesting that whilst 'the horizons of recording, indeed of music as a whole have expanded [and] new production technologies and aesthetics have emerged ... the old techniques have not simply fallen away ... it would be foolish to claim that the old ways are obsolete' (2005: 109-110). In fact, the later work of Marrington suggests that the modern digital audio workstation interface is, 'in almost all cases ... constructed with some reference to a "real-world" musical medium' (Marrington 2011). It is essential to acknowledge, therefore, that recordist practices have an equal potential to mediate the script of technological design.

Indeed, Barber (2012), Marrington (2011), Leider (2004) and Warner (2003) have all noted the cumulative integration of technological precursors into modern production tools, notably the skeuomorphic construction of computer based digital audio workstations, with the foremost suggesting that ‘the Fairlight synthesiser and the Synclavier ... lay[ed] the “conceptual groundwork” for the modern “Pro Tooled” world’ (Barber 2012). Furthermore, the emergence of digital signal processing (DSP) has been labelled by Mark Katz as purposefully replicating the construction, aesthetics and functionality of technological precursors (2004: 50-52). Commercially available sampling libraries, virtual instruments and DAW plugins have also been identified as being derivative of vintage instruments and technologies, and thus as being representative of a cumulative construction process (Bennett 2012a). Colby Leider discusses the development of the DAW in relation to magnetic tape technology, arguing that whilst it can ‘effectively replace and encapsulate much or all of the functionality present in a traditional console-and-outboard-gear-based studio’ it remains ‘firmly rooted in the traditional archetypes of interaction found in console-centered studios’ (2004: 46). With digital tools frequently mirroring analogue precursors in form and functionality, the cumulative construction of these technologies is readily apparent (Warner 2003).

Although there exists an abundance of literature that agrees upon the gradual, social construction of audio artifacts rooted in technological precursors, the significance of cumulatively constructed domain knowledge is typically not recognised. Returning to Moorefield’s statement here, the ‘old ways’ he references are, I argue, not forced into obsolescence as a result of a skeuomorphic tendency within modern audio artifacts visual construction, that privileges the knowledge of the recordist. More than this, I suggest that ‘domain acquisition’ (Thompson and McIntyre 2013) is made a necessary practice, prior to any engagement with said technology in the first instance. Whilst DAWs are often cited as a cornerstone of the aforementioned ‘democratic’ potential digital technologies afford, their operational dependence upon knowledge, skills and practices that are protected by domain participants (Draper 2013; Tomaz de Carvalho 2012; Heward 2009: 14; Haring 2007: 68-69; Horning 2004a: 707, 721; Thompson 2002: 237; Horning 2000: 101) can be said to undermine this argument. Thus, whilst digital technologies often allow for a lower price-point and, arguably, an improved efficiency with regards to production time and running costs (Rumsey 1990: 96), they also presume a rigidity in production habits and a complacency with regards to the widely perceived, linear

evolutionary process of the recordist as a community participant. This is not to suggest, rather pessimistically, that cumulative artifact construction cannot be conducive to new recording practices or facilitate any degree of inclusivity whatsoever, but rather, that with rapidly advancing artifact massification, it would be presumptuous to continue to base modern technologies upon methodologies, artifacts and interfaces propagated by precursors without acknowledging the material and discursive implications for recordists.

Audio tools are, as I have shown, rooted in over a century of domain practices and knowledges that are cumulatively inscribed. As a consequence, I have suggested that these inscriptions must be acknowledged and practiced or enunciated 'correctly' in order for domain participants to be rendered visible and considered legitimate. Whilst specialist knowledge is, of course, required in any discipline, the frequent enunciation of democracy within the literature considered, often overlooks this significant factor. The associated development of the user thus forms a relevant area of research when seeking to understand and interpret how conceptions of domain knowledge are articulated and result in the exclusion of certain participants.

Théberge has identified the music press as assuming a key role in facilitating the articulation of an exclusive discourse, suggesting that industry texts 'foster a particular kind of group identity and a sense of "community", on the one hand, seemingly democratic and idealistic and, on the other, curiously bound to an identification with particular objects of consumption' (1997: 90). The following chapters therefore examine audio communities surrounding print media texts as a means of better understanding how knowledge is articulated and the implications for domain participants. I suggest that knowledge is often positioned and wielded as a means of resisting 'democratisation' resulting in participant exclusion. In doing so, the history of audio technology print media is investigated, with a focus on masculinity as well as notions of public and private space, and how perceptions of accessibility have fed and continue to feed, into contemporary discourse surrounding audio technology.

2.8 Conclusion

This chapter has explored the cumulative co-construction of the recordist and audio artifacts as a means of interpreting a series of academic texts concerned

with the historical establishment and continued development of audio technology theory and practice. A comparative outline of social constructivist methodologies was undertaken, pointing to the significance of mediation and agency in interpreting the navigation of artifact and user 'borders' (Bijker and Pinch 2012: xvii). Theories of user configuration (Woolgar 1991: 59), script (Akrich 1992: 208) and genderscript (Oudshoorn and Pinch 2005: 10) were also presented, an understanding of which underpins the remaining chapters of the thesis. I suggested the adoption of SCOTS methodologies in order to navigate linear academic narratives of user and artifact construction that espouse techno-determinist and techno-pessimist views. An acknowledgement of interdependent artifact and recordist development revealed a series of impediments to participation in the audio domain, notably the implicit prerequisite of knowledge, manifest in both discourse and practice. In recognising this, I have provided a partial response to the primary research question outlined in Chapter One, in particular by bringing into question the supposed democratic potential of audio technologies and the mechanisms that have resulted in the material inscription of knowledge as a form of exclusion. I have suggested that democratisation fails to account for a series of interconnected 'commonalities' (Tomaz de Carvalho 2012; Théberge 1997: 136) that collectively construct audio technology communities. The responses formulated here lay the foundations for further analysis in subsequent chapters, where the focus turns to these very same communities, and elucidates the concepts of exclusion and participation in relation to the audio technology press.

Chapter Three: Exclusivity In Print Media Discourse

In this chapter, I investigate the origins and subsequent development of audio technology (and associated) print media as a specialised subset of the music publishing industry. In doing so, I present an analysis of the historical and thematic development of musicians' periodicals (and hobbyist/audiophile literature) that developed in coincidence with technological proliferation, and served to establish exclusive, mediated forms of participation within the surrounding communities (as defined earlier). I contend that print media texts, as well as the associated participants, frequently deploy potentially exclusivist discourses that serve to alienate and 'other' those not seen to conform to the homogenous, normalised conception of users. As a consequence, I argue that these discourses are at odds with, and often seem to constrain, the potential for democratisation as argued by both Théberge (2001: 12) and Heward (2009: 9). Thus, the democratic potential of audio technologies and print media texts are, I contend, perpetually undermined by notions of masculinity and gear fetishism within audio technology discourse, which serves to exclude. With reference to the proceedings of a recent academic symposium entitled *What Is Music Technology For?*, Nancy Baym astutely observed a series of problematic tropes that provide a useful foundation for my investigation. She argues that:

'Too often music technologies are used as tools of exclusion rather than inclusion. Because what counts as "music," "technology," and "music technology" is unsettled, those with the most power create the most powerful definitions. Meaningful innovation bridges multiple perspectives – yet the music technology field remains predominantly white, male, and tends toward assumptions that its user base is Western and able-bodied. Music is too often denigrated as frivolous or fetishized as sacred, shutting down discussion, action and investment in transformation. Technology, too, is fetishized, as if it did not come from and contribute to particular cultural worlds. It suffers from the glamour of the new, when it should be understood within its long history' (Baym 2014).

The observations outlined here offer useful categorizations on which to draw within the body of this chapter. In particular, the tropes of masculinity, technical knowledge and gear fetishism are investigated within audio and audiophile cultures as a means of illuminating what I am calling the operation of exclusivity in the audio technology

domain. A concept of 'community' is once again informed by Théberge and his concept of 'commonality' as detailed in previous chapters (1997: 136). The aforementioned tropes are considered as forming a conception of knowledge that encourages participant obedience in order to form a dominant and often homogenous discourse and so perpetuate a normalised concept of participation. In my definition of knowledge, I am drawing on the work of Foucault, who states that:

'Objects, enunciations, concepts, or theoretical choices form the precondition of what is later revealed and which later functions as an item of knowledge or an illusion, an accepted truth or an exposed error, a definitive acquisition or an obstacle surmounted ... This group of elements, formed in a regular manner by a discursive practice, and which are indispensable to a constitution of a science, although they are not necessarily destined to give rise to one, can be called knowledge' (Foucault 1997: 181-182).

By analysing the power and knowledge relations within the discourse of audio technology print media, one is able to better understand how specific enunciations are deemed legitimate, and deviant enunciations or performances are excluded. By extending the work of Tomaz de Carvalho (2012) concerning home recording and links with print media discourse, I analyse magazines as a key site of user construction and community interaction through the articulation of the aforementioned 'knowledge' as defined by Foucault (see also Chapter Two).

Drawing upon theory from social construction of technology studies (SCOTS), print media is understood as functioning as a 'mediation junction' as termed by Schot and Albert de la Bruheze (2005: 234). Thus, it is a site 'at which consumers, mediators, and producers meet to negotiate, articulate, and align specific technical choices and user needs. It is an area where agenda building and technology development become connected' (ibid.). In order to contextualise the articulation and negotiation processes of the various print media participants, then, relevant literature from within the fields of sound studies and the Art of Record Production is also drawn upon. Although magazines function as mediation junctions, however, they must also be understood as technologies that are socially constructed and should thus be subjected to greater scrutiny than might initially be apparent from the definition offered by Schot and Albert de la Bruheze. Théberge has suggested that 'music periodicals, furthermore, provide their readership with a ready-made set of discourses for the framing and resolution of issues concerning technology and music - issues that are socially and culturally loaded' (1997: 94). It is

essential that one questions how discourses are constructed and, furthermore, how the perpetual navigation of 'borders' between agents alters discourse accordingly as Bijker and Pinch suggest (2012: xvii). It is therefore useful to investigate audio print media discourses using methodologies from SCOTS in order to understand the co-construction of magazines (in the form of a technology), and readers or participants (in the form of users). Further methodologies are therefore implemented in order to explore the inscription and de-inscription of these technological artifacts (Oudshoorn and Pinch 2005: 10). An understanding of this process is provided by the concept of genderscript as outlined by van Oost (2005: 194-196), as well as Judith Butler's work pioneering work concerning gender (1990). These concepts are discussed in greater detail below, where I suggest that performances of masculinity contribute to a conception of knowledge that functions as a prerequisite to participation. I demonstrate that historically, the role of women in the audio domain has been largely restricted, partially as a consequence of nineteenth century attitudes of male elitism and masculinity, and their inscription onto contemporary mass culture discourses. The concept of script is used here as a means of demonstrating how nineteenth century notions of public and private became manifest in the physical construction of audio technologies and the surrounding discourse.

The historical narrative of print media that I present is drawn from a variety of sources, principally the academic analysis of historical texts, as well as primary archive materials. I present a comparative analysis of these varying sources to provide a balanced investigation into how exclusivist discourses have been established historically. Furthermore, a comparative analysis shows how these discourses have become integrated into contemporary print media texts that serve to perpetuate their existence. Through the investigation of early radio and audiophile/high-fidelity movements, an understanding of the social and cultural contexts within which the audio press established itself is presented (Stamm 2010; Heward 2009; Perlman 2003; Théberge 1997). Through an examination of this period, I demonstrate how exclusivist discourses became embedded as components of related print media, and ultimately, inscribed upon technological artifacts (Rodgers 2010a; van Oost 2005; Oudshoorn and Pinch 2005; Katz 2004; Théberge 1997). Throughout my analysis, I pay particular attention to the concepts of gender, demonstrating the historical significance of public and private spheres in the perpetuation of what is widely viewed as a predominantly white, male domain

(Baym 2014; Wolfe 2012; Heward 2009; Douglas 2004; Campbell 2003). Magazines are thus located as sites of gender role production and reproduction, as well as artifact inscription and de-inscription (Oudshoorn and Pinch 2005: 10). The notion of technical knowledge is similarly examined, with a focus on its development as an extension of a historical public/private dichotomy (Heward 2009; Théberge 1997; Keightley 1996).

3.1 Democratisation

The historical, social and economic importance of print media's communicative role in the development of audio technology communities has been well documented (Stamm 2010; Heward 2009; Perlman 2004; Douglas 2004; Keightley 1996). Specialist publications can be said to contribute to notions of community and cultural identity that are often defined in opposition to mainstream media. Théberge has referred to magazines 'as a particular form of mediated interaction ... magazines construct their readers as both a kind of musical "community" and a market' (1997: 121). Heward's study concerning the development of audiophile culture identifies the press as essential in providing like-minded readers with a sense of community and identity (2009). More than this however, the press similarly functions as a means through which musicians act as consumers. Heward suggests that 'the high-end audio market is an excellent illustration of the push-pull relationship that exists between industry and consumer. ... most participants maintain their connection to audiophile culture through magazines that both advertise and evaluate high-end audio equipment. These magazines serve at once as promoters of merchandise to consumers and as a tool for research and development within industry' (2009: 16). Théberge suggests that 'musicians are a small and highly specialized group of consumers, and the musicians' press, in particular, has been a vital link between the industry and its market' (1997: 90). At the crux of Théberge's argument is the inextricable link between equipment manufacturers, their advertising, and consumer spending. This micro-industry, theorised as a 'double production' industry (Théberge 1997: 130) is further commented on by Bennett (2012c: 119) with respect to the significance of manufacturer advertising revenue in establishing a market, and relevant periodicals in disseminating the associated content. The audio technology press, as an extension of musicians' magazines, has therefore similarly been linked to

consumption, where participation is often articulated as depending on one's material assets (Bennett 2012c; Tomaz de Carvalho 2012; Heward 2009; Perlman 2004; Théberge 1997). When analysing the development of the audio technology press then, it is necessary to recognise its association with consumption, marketing and advertising alongside notions of community engagement and interaction.

Heward has suggested that early on in the establishment of audio technology print media, advertising campaigns placed an emphasis on the 'democratic potential of audio technology' (2009: 9) to assuage concerns about musical exclusivity by positioning their products to a large demographic. This point is developed by Paul Théberge, who points to the 'continuous "democratisation" of the audio marketplace' (2001: 12) as broadening the availability of audio technology. As I have suggested in the second chapter, however, the concept of democratisation is limited in that it fails to recognise processes of exclusion based on the user's perceived knowledge base. Tomaz de Carvalho suggests that '*democracy*' is 'intrinsically linked to and dependent on *consumption*, be it of gear, specialized media, the service of tutors or the rental of rooms in big studios' (2012). Whilst the massification of new technologies may lower price barriers for consumers (Barber 2012; Zak 2007b), knowledge, as informed via the tropes of masculinity and gear fetishism, remains fundamental to community interaction (Bennett 2012c: 139). In this sense, then, the term democratisation fails to acknowledge some of the complexities of print media discourses, in that they function as both promoters of technology to consume, but also as proponents of an accepted concept of knowledge with which to interact.

In discussing the social construction of the Moog synthesiser, Trevor Pinch has observed that 'technology studies have not paid sufficient attention to mediators such as marketers and salespeople in the development of technology' (Pinch 2005: 248). Whereas Pinch investigates the site of user 'invention', the following analysis is primarily concerned with the role of magazines as mediators in the social construction of users as well as conceptions of knowledge (Suisman 2010: 3). Whilst marketing campaigns may advocate the potential for universal accessibility through the democratisation of technology, the mediative potential of magazines must also be considered as both Théberge (1997) and Bennett (2012c) suggest. The following analysis is therefore concerned with investigating how the perpetuation of exclusive print media discourses has continued, despite the promotion and reception of audio technologies as democratising. Fundamental to an

understanding of this process is the trope of masculinity explored in greater detail below (see also chapters one and six), and specifically its interdependent social construction alongside technological artifacts. It is therefore necessary to address theories from SCOTS as analytic frameworks of further investigation.

3.2 Gender and SCOTS Analytic Devices

In her seminal book *Gender Trouble* (1990), Judith Butler recognises the problematic construction and reception of gender as a concept, suggesting that historically ‘gender was so taken for granted ... it was assumed either to be a natural manifestation of sex or a cultural constant that no human agency could hope to revise’ (1990: xx-xxi). Butler has observed that such simplistic categorisations fail to recognise that notions of gender and identity categories ‘are in fact the *effects* of institutions, practices, discourses with multiple and diffuse points of origin’ (1990: xxxi). It is then essential that one recognise gender as a social construct, and thus - in the context of this chapter - as functioning towards, and in reaction to, audio technology, associated print media, and the surrounding domain and communities. Bijker and Pinch suggest that ‘for SCOTS researchers it is more usual to talk about gender, race and class as outcomes or as being materially performed’ (Bijker and Pinch 2012: xx). Oudshoorn and Pinch have similarly stated that ‘users should be studied as a crucial location where often-contradictory gender identities and power relationships [are] woven around technologies’ (2005: 4). The research conducted hereon therefore adopts the methodology of genderscript as a means of investigating the complex inscriptions of gender upon audio technologies and related print media, and the consequences for exclusivity. In doing so, this work responds to that of Bennett concerning ‘technoporn’ and the double production industry as a means of interpreting the “gendering” and/or “sexualisation” of technology’ (2012c: 140).

Conceptually, genderscript has evolved as a cumulative process beginning with the emergence of SCOTS as a discipline. The concept of user configuration, as presented by Steve Woolgar (1991: 59), presents the design process of technologies as defining, as well as enabling and constricting, the user. A more detailed description of this methodology is presented in Chapter Two, but it is useful to revisit here in order to chart the development of genderscript as an analytic tool. Criticisms of user configuration, such as that of Mackey et al. (2000: 752), have

drawn attention to the rather simplistic presentation of designers as maintaining sole autonomy in the configuration of users and technology. Mackey et al. argue that Woolgar fails to acknowledge the mediative potential of other actors involved, in particular users as influencing the design process (ibid.). As an extension of Woolgar's theory, the concept of script put forward by Akrich (1992) makes users more visible as active participants in the implementation of technologies. Script proposes that artifacts prescribe user interaction and furthermore, make visible the actions and inactions of users in replicating the designers envisioned functionality. It should be recognised however, that 'scripts cannot determine the behaviour of users, their attribution of meaning or the way they use the object to construct their identity, as this would lead to the pitfall of technological determinism' (van Oost 2005: 196). The concept of genderscript extends the work of Akrich by investigating the representations of gender constructed by designers. Ellen van Oost has stated that genderscript refers to 'the representations an artifact's designers have or construct of gender relations and gender identities - representations that they then inscribe into the materiality of that artifact' (2005: 195). Genderscript is therefore useful in illuminating how gendered user representations form an inextricable component of technological design. It is through the processes of inscription and de-inscription that designers' projected perceptions of users become manifest within technological artifacts. Considering audio technologies and magazines as such artifacts, then it is through this process that a sense of exclusivity is established, in that products become tailored to a specific consumer:

'The genderscript approach drastically redefines the exclusion of specific groups of people from technological domains and activities. Whereas policy makers and researchers have defined the problem largely in terms of deficiencies of users, genderscript studies draw attention to the design of technologies. These studies make visible how specific practices of configuring the user may lead to the exclusion of specific users' (Oudshoorn and Pinch 2005: 10).

It is similarly important to note that what constitutes gender is not fixed and should be considered fluid. Borders between agents such as technological artifacts, designers, and users are continually being navigated and thus have the capacity to alter perceptions and inscriptions of gender. Gender is considered as 'an analytical category, the content of which is constantly being negotiated, and objects with inscribed gender relations are actors in these negotiation processes' (van Oost

2005: 196). Therefore, objects have the potential to 'stabilize or destabilize hegemonic representations of gender' (Oudshoorn and Pinch 2005: 10), depending on their application. Of particular interest when investigating audio technology print media, is the historical negotiation of these borders, where artifacts are coded as masculine and articulated as such within discourse. Butler suggests that 'if gender is naturalized through grammatical norms ... then the alteration of gender at the most fundamental epistemic level will be conducted, in part, through contesting the grammar in which gender is given' (1990: xx). It is therefore imperative that one deconstruct gender performances within the discourse of the audio technology domain as a means of interrogating how notions of masculinity are established and normalised. Furthermore, through discursive analysis, I show how knowledge is produced through performances of masculinity as opposed to an alternative. This analysis demonstrates how those who fail to conform to this narrow demographic are marginalised or excluded completely (Baym 2014; Rodgers 2010a; Heward 2009; Théberge 1997; Keightley 1996).

It should be recognised here that Butler critiques the overall construction of gender, and argues against what are considered as being overly simplistic discourses that attempt to reconcile notions of masculinity and femininity. Butler suggests that her work seeks to 'counter those views that [make] presumptions about the limits and propriety of gender and restrict the meaning of gender to received notions of masculinity and femininity' (1990: viii). She continues: 'is the breakdown of gender binaries, for instance, so monstrous, so frightening that it must be held to be definitionally impossible and heuristically precluded from any effort to think gender?' (Butler 1990: ix). Fundamental in understanding gender then, is what Butler recognises as its social construction as a performance, and its removal from biological concepts of sex and cultural perceptions of nature. The tendency to rely uncritically upon binary categorisations of gender has similarly been recognised by historian Lawrence Klein, who suggests that a significant portion of academic analyses all too readily falls back upon binaries as a way of classifying histories.

Klein observes that what he calls the 'domestic thesis', that is, the traditional binary observation of eighteenth century gender roles (male/female, public/private), is too often unquestionably accepted and thus perpetuated 'as an analytic device for those of us who write histories' (1995: 98). Furthermore, it is suggested that binary arguments are fundamentally more complex than they may initially appear. In particular, he points to the work of Wittgenstein (1983) with regards to word choice

in discourse, and the role this plays in establishing what is referred to as 'mobility'. Klein suggests that people 'assign so many meanings to individual terms that the dichotomies themselves become extremely mobile ... each term in the opposition has several meanings ... recognizing this mobility of meanings increases the complexity in mapping discourse' (1995: 99). Whilst Klein's research and observations acknowledge a depth of complexity and demonstrate a perceived over reliance upon the 'domestic thesis' as a crutch for explaining or simplifying historical observations concerning gender roles, this does not alter the fact that the 'mobility of meaning' is still essentially based on a dichotomy. To clarify, the depth of complexity Klein discusses is never allowed to actually come into being as the a priori dominant and accepted discourse excludes those seen to challenge it. Furthermore, whilst the intricacies of what constitutes a dichotomy are challenged, its presence as a binary construct is validated nonetheless. Applying the concept of gendered binaries to the domain of audio technology, I will show that this dichotomy is intrinsically rooted within the spaces of either mass culture or high culture, and thus creates a genuine division of users based not only on gender performance but also complex perceptions of class.

3.3 The Public/Private Divide

Susan Douglas has observed that during the nineteenth century, music performance and an appreciation of mass culture were 'stigmatised' as predominantly feminine pastimes, and as a consequence, it was uncommon for men to engage in artistic pursuits as hobbies (2004: 88). This stigma, Douglas continues, was historically attributed to the divide between public and private responsibilities, which were seen as being inextricably linked to gender and the prevailing masculine authority that typified male/female interactions and relations during this period. Heward suggests that, 'in this model, the male consumer was viewed as genuine, authentic, objective' (2009: 29) whereas women increasingly became the prime target for products of mass culture and consumption, which assisted in the creation of a cultural divide. Huyssen corroborates this view, suggesting that of particular prevalence was the contemporary conflation of mass culture with femininity. He states:

'What especially interests me here, is the notion which gained ground during the 19th century that mass culture is somehow associated with

women while real, authentic culture remains the prerogative of men ... the inscription of the feminine on the notion of mass culture, which seems to have its primary place in the late 19th century, did not relinquish its hold, even among those critics who did much to overcome the 19th century mystifications of mass culture as woman' (Huyssen 1986: 47-48).

However, whereas Huyssen suggests that this 'underlying dichotomy did not lose its power until recently' (1986: 62), thus implying its obsolescence, I argue that audio technology and the associated print media, continues to be scripted through gender based on the foundations of this simplistic public/private dichotomy.

Gavin Campbell suggests that 'nineteenth century proscriptions against working outside the home in any field had confined "decent" women to domestic responsibilities, and those interested in musical careers quenched their larger ambitions with parlour recitals and music instruction' (2003: 447). Expanding upon this concept, Marcia Citron suggests that it is possible to trace nineteenth century gender bias within audio culture back to what she calls the 'regular and systematic denial of access to the full range of compositional training' (1990: 105). In the absence of a musical education comparable to that of male composers, Citron argues that women were unable to continue their professional development, specifically through publication and performance. She states that 'women, in general, experienced enormous difficulty in forging those necessary contacts, largely through gender-specific conditions' (1990: 106). Citron argues that this denial of access set a historical precedent that has subsequently been maintained and led to a largely male dominated audio culture (ibid.).

A dichotomy can therefore be seen to have evolved through the disparity in opportunities offered to both men and women with regards to music education, in addition to the gendering of mass and high culture interests. Historically, this is a dichotomy that can be seen to have been perpetuated through the inscription of gender upon audio technology and its related print media. Théberge has also identified this, locating musicians' periodicals as an example of content being targeted at these increasingly disparate demographics. In this context, he relates that:

'Music, considered by many during the period as primarily a female pursuit, became regarded as an important means of gaining the attention of a female readership ... by the beginning of the nineteenth century, titles such as *Ladies Magazine and Musical Repository* and the *Ladies' and Gentleman's Weekly Literary Museum and Musical*

Magazine began to appear ... In 1842-1843, a literary magazine entitled the *Boston Miscellany* was launched. Fearing that a purely literary magazine would not succeed, its editors decided that fashion, love stories, and music would attract a dependable readership ... In such instances then, the stereotyping of gender (and class) roles in nineteenth-century magazines not only placed female cultural pursuits in an inferior position to those of their male counterparts but also put them in the service of male economic goals' (Théberge 1997: 97).

Print media concerned with audio during the nineteenth century can therefore be considered to have perpetuated and reproduced well-defined gender roles, and thus functioned in an exclusive capacity. The democratic potential of print media as a technology was thus undermined through the gendering of both mass and high culture within the dominant discourse. In addition, just as the home environment can be said to have defined the content of music periodicals somewhat during the nineteenth century, these very same periodicals also gave value and meaning to the environment itself, and thus maintained notions of exclusion (Théberge 1997: 97). Huyssen has similarly identified the links between high culture and exclusion, stating that 'the universalizing ascription of femininity to mass culture always depended on the very real exclusion of women from high culture and its institutions' (1986: 62). However, the introduction of recording and reproduction technologies looked to challenge these institutionalised perceptions, as Kelly Heward has acknowledged. She states: 'Audio technologies were an entirely new form of consumer item that was capable of taking a high art form and bringing it to the general public. Men thus had to distinguish their engagement with these technologies from conventional uses in order to retain status' (2009: 29-30). The emergence of audio technologies can then be said to have reconciled notions of public and private and thus challenged the status quo with respect to both gender and class.

Heward (2009), Douglas (2004) and Campbell (2003) have all recognised that it was initially seen as demeaning for men to engage in the appreciation of sound within private spaces. Furthermore, the research of Marcia Citron has demonstrated that although work as a composer or orchestra musician was considered respectable, these jobs remained interests of high culture, expressed within the public domain (Citron 1990; Huyssen 1986). With the introduction of audio technologies, men sought an alternative means of entering discourse concerned with high culture in the private sphere. Heward suggests that a means was

discovered by refocusing what mass culture listening devices represented. By placing an emphasis on technical rather than aesthetic details, men were able to enter into a discourse on sound that stressed 'traditional' masculine values and pursuits such as scientific understanding. Mass culture audio devices were therefore de-inscribed as feminine, reappropriated, and re-inscribed as masculine. Nowhere can this be seen more clearly than through an examination of the phonograph and what its arrival signified with regards to the gendering of mass culture devices, conflicts over domestic space, as well as changing notions of the public/private divide. The following analysis is therefore concerned with the design, marketing, and reception of the phonograph and other audio technologies, through the use of genderscript as an analytic tool. The role of associated print media is also investigated at this point, with an emphasis on its potential to inscribe technological artifacts and reinforce notions of masculinity and femininity.

3.4 Audio Technologies and Print Media Discourse

Prior to the establishment of recording and reproduction technologies, select genres and styles of music were disseminated through live performance only, necessitating the financial means and relevant social connections in order to participate (Milner 2009; Morton 2004; Douglas 2004; Campbell 2003). The implicit public/private dichotomy similarly functioned in an exclusive capacity, regulating access to music through the gendering of culture itself (Huysen 1986). However, it is important to understand that the arrival of audio technology marked the convergence of these historically disparate pursuits, mass and high culture, by facilitating the introduction of 'good music' into the home environment (Katz 2004: 62). In a sense then, the phonograph can be seen as one of the fundamental artifacts that looked to challenge widely accepted binary notions of public and private. Katz has suggested that through the phonograph, 'potentially every American could hear the classics, because phonographs and records could travel where professional musicians never ventured' (2004: 59). Recording and reproduction technologies can therefore be considered to have had the potential to democratise the listening experience by, hypothetically, allowing for universal access to music. Hadley Cantril and Gordon Allport have expressed a similar sentiment with respect to radio technology, arguing that its arrival democratised human experience through sound (Stamm 2010: 221). With the introduction of radio

technology '[the] poor man escapes the confines of his poverty; the country dweller finds refuge from local gossip; the villager acquires cosmopolitan interests; the invalid forgets his loneliness and pain; the city dweller enlarges his personal world through contact with strange lands and people' (ibid.).

A disparity begins to emerge however, when one examines print media, in particular the marketing and advertising campaigns used to introduce new audio technologies to prospective buyers. As Kenney (1999), Keightley (1996) and Heward (2009) have acknowledged, the phonograph was initially promoted as a piece of furniture, and thus inscribed as private property (Katz 2004: 62). Furthermore, the traditional understanding of the home as a private domain ensured that audio technologies were targeted towards a female audience. The inscription of femininity onto the phonograph was thus inextricable from what Huyssen has observed as 'the universalizing ascription of femininity to mass culture' (1986: 62). Drawing upon genderscript here, Ellen van Oost has suggested that:

'Advertising is an important locus for linking an object to a specific consumer group. By creating links between the advertised object and the (sub)culturally accepted masculine or feminine symbols, advertisers hope to seduce the targeted group to buy the product. At the same time they actually construct gender and the means to perform gender' (van Oost 2005: 194).

Van Oost's observations have clear parallels with the work of Théberge concerning the 'double production' industry (1997: 130), in that advertisers and print media texts collectively produce both technology and users that are implicitly masculine (1997: 122). Phonographs were initially advertised to women by reconciling the notion of technology with traditional feminine symbols representative of the home environment. As Katz has observed, 'the industry responded to the demand for phonographs that looked more like furniture than machines (often meaning that the horns disappeared, enclosed within cabinets), allowing them to blend into the home environment' (2004: 62). In this way, the technology itself was masked by eliminating visible screws, wires and moving parts (van Oost 2005: 206). The design trajectory of the domestic phonograph was therefore based on the construction of femininity as technophobic, drawing directly from nineteenth century notions of public and private. It is arguable therefore, that the physical construction of the phonograph embodied notions of private domestic space, in that the object was physically closed off and distanced from external interference. More than this

however, the inscription of gender onto the phonograph not only scripted the object as feminine, but furthermore, established a precedent that homes ought to acquire domestic objects to gender space. To clarify, Th  berge has suggested that audio technologies came to be seen as commodities that were symbolic of domestic life and, as such, featured prominently in texts that sought to reaffirm notions of the private domestic space (1997: 97). It is important to recognise however, that the genderscript of the phonograph cannot force users to invoke gendered identities; the script can be rejected or even modified as the work of both van Oost (2005: 207) and Akrich and Latour (1992: 261) suggest. However, a conception of gender and the elements necessary to perform gender were nonetheless perpetuated within contemporary advertisements.

A closer investigation into purchasing habits of the period is useful here in ascertaining the effectiveness of scripted advertising. Kenney has observed that a 1919 study on purchasing habits suggested that women were twice as likely to purchase a phonograph than men and additionally, that women remained the primary purchaser of domestic goods even when joined by their spouses (2003: 95-100). Gender roles can therefore be seen to have continued to shape perceptions of music in both public and private spheres long after the commercialisation of audio technology. It is important to recognise however, that despite the initial inscription of the phonograph as feminine, men similarly enjoyed its arrival as Katz has suggested:

‘The phonograph had a significant impact on the male of the species as well. It offered something new to the average American man: a way to enjoy music without risk of being unmanly or, in the parlance of the day, “sissy” or “soft”. The phonograph also mitigated the supposed “feminizing” influence of music (particularly classical music), because as a machine it opened opportunities for tinkering and shop talk, traditional men’s activities’ (Katz 2004: 66).

This observation confirms Heward’s (2009) sentiment, in that the reappropriation of audio technology was seen as being essential in order for men to enjoy a public and socially acceptable discourse surrounding music itself. Katz continues: ‘It opened up the possibility of interacting socially through music and of experiencing music on an intimate, personal level. Thus the phonograph essentially allowed men to engage in activities that had long been constructed as feminine pursuits, but in ways that encouraged mastery and exploration rather than uplift and education’ (Katz 2004:

68). The inscription of masculinity onto audio technology discourse can then be seen to have emerged alongside the articulation of specific technical knowledge. With respect to genderscript, Ellen van Oost has observed that 'the new domain of electronics was put fully in the service of developing the gender script of masculine control and technological competence ... the bond between men and technical competence has been inscribed firmly in the design of consumer appliances' (2005: 207). The articulation of knowledge thus proved to be essential in inscribing audio technologies and relevant discourses, that at once served to both reflect the gendering of technical competence, but also construct and emphasise technical competence.

Théberge has identified this emphasis as leading to a fundamental shift in the discussion of audio within print media, where technology was frequently brought to the foreground (1997: 104). He suggests that as demand for recording and reproduction technologies became sufficiently large, specialist publications began to emerge whose very titles began to reflect this emphasis; notably *Gramophone*, founded in 1923 in the UK, and *Audio*, a US publication launched in 1917 (ibid.). Théberge continues, stating:

'In magazines of this type, music becomes primarily a pretext for showcasing technological products. ... the audio magazine has become a marketing and promotional mainstay of both the electronics and the record industries. The importance given to the technical characteristics of music reproduction devices moves many such magazines to the category of hobbyist magazines ... rather than that of music magazines' (Théberge 1997: 104).

It is useful at this point to consider how the possession and articulation of knowledge became fundamental to print media discourse through an analysis of historical changes within the audio domain. Through an investigation into both radio and audiophile/high-fidelity movements, I present an understanding of the social context within which the audio technology press established itself, and began to emphasise the possession and articulation of technical knowledge as a prerequisite to participation.

Following the production of the phonograph, the early twentieth century saw a boom in technological development, during which time electrical recording, amplification and distribution came to fruition (Horning 2004a). This was exacerbated by the advent of World War II, during which time, Morton notes, 'the

military services in all countries sought out those with expertise in electronics, and trained thousands of men and women in the basics of electrical engineering' (2004: 132). This simultaneously gave rise to an enthusiasm for technology, but also an understanding of its functionality, leading to the development of niche communities versed in industry specific terminology and discourse (Tomaz de Carvalho 2012; Heward 2009; Milner 2009; Haring 2007; Morton 2004; Horning 2004a). Print media naturally served as a mediation junction for these communities, through which consumers and manufacturers established mediated forms of participation that relied heavily upon technological consumption and overtly technical discourses. The articulation of knowledge and scientific understanding was prevalent in American technical periodicals such as *Audio* (1947-2000) and *Electronics* (1930-1995) during the post-war period, and have arguably persisted into contemporary texts, as chapters four and five attest with respect to *Tape Op* and *Sound On Sound*.

With the emergence of new technologies, the augmentation or creation of discourses with which to contextualise and understand them is inevitable. However, one must recognise the potential for alienating or excluding those not privy to the conception knowledge deemed necessary to participate (Foucault 1997: 181-182). A dichotomy rooted in knowledge can therefore be witnessed in coincidence with the proliferation of audio technologies. Tomaz de Carvalho has recognised this within the contemporary discourse of home recording, where the authoritative, prescriptive voice of the 'Pro' recordist is juxtaposed against a DIY/guerilla mentality. However, whilst the counter discourse of the amateur is arguably less prescriptive, the physical possession of technology and associated knowledge remains an impediment to participation, thus 'even "lo-fi" recordings become a privilege of a few music aficionados' (Tomaz de Carvalho 2012). Therefore, proposed notions of democratisation are only valid within an exclusive discourse that is articulated and legitimised by subjects wielding a certain degree of economic and intellectual power (ibid.). Therefore, just as audio technologies have the potential to undermine a hierarchy of recording and reproduction, one's ability to participate economically and through the articulation of knowledge within relevant communities form prerequisites to participation, specifically within the context of print media.

Emily Thompson suggests in *The Soundscape of Modernity* (2002) that very early on in the development of audiophile publications, a series of distinguishing qualities emerged that have continued to pervade more contemporary magazines.

She suggests that 'consuming sound quality was more compelling than listening to music. He [the listener] derived pleasure from knowing that he had obtained the best-sounding reproduction possible, and his consummate taste enabled him to avoid the noises that characterized the inferior records that he had rejected' (2002: 237). Furthermore, she observes that audio manufacturers were able to instill a sense of precision and fidelity in the minds of consumers, based on a belief in technical superiority (2002: 237). The practices of sound recording and reproduction can then be considered to have been reduced to issues of a seemingly technical nature very early on in their establishment, particularly as the focal point within the available print media. It is significant to observe here that Thompson uses a gendered pronoun when referring to the listener, characterising the community overall as a predominantly male space, as Baym (2014), Rodgers (2010a) and Heward (2009) have similarly recognised. The perpetuation of masculinity as a component of knowledge can thus be understood as an effective means of othering based on gender, and thus in establishing exclusivity. The scripted discourse therefore reaffirmed and constructed a concept of masculinity that correlated with notions of technical competence, but similarly functioned in an exclusive capacity that othered women participants by reinforcing an accepted cultural norm that they 'ought to dislike technology' (van Oost 2005: 207).

Both Morton (2004) and Heward (2009) have made similar observations to that of Thompson, citing the significance of early radio, high-fidelity and audiophile cultures in establishing print media discourses that advocate scientific and technical knowledge. Morton has suggested that early technological enthusiasts, particularly those involved with radio became involved in print media discourses by:

'Publishing "how-to" articles in the many technology-oriented magazines of the day, and sometimes by manufacturing and selling their own equipment. A scientific mindset among technicians and engineers contributed to the notion that the music heard in the home on the radio or on disc should ideally sound exactly like the original performance. It should, in other words, exhibit a high degree of "truth", or fidelity, to the original. And, according to science, that fidelity ought to be measurable' (Morton 2004: 131).

Stamm has similarly identified the importance of print media in perpetuating a fixation with technological understanding, stating that 'in the 1920s, American newspapers were filled with articles about radio, often in lavish speciality sections teaching listeners how to build sets and promoting the programs and personalities

they might hear once they had done so' (2010: 223). The emphasis upon kit building has also been recognised by Haring, who suggests that during the post-war period, it became increasingly common to build one's own equipment from 'even less than a box of parts' (2007: 68-69). Early print media discourses relating to audio technology can then be said to evince a fixation with technological understanding rooted in one's ability to assemble technologies from scratch. Furthermore, many enthusiasts began to 'tweak' their equipment as a means of enhancing their own understanding, whilst simultaneously participating in discussions surrounding their findings (Perlman 2004: 794; Horning 2004a: 721; Perlman 2003: 350-352; Horning 2000: 101). Heward states that 'tweaking is important because it is a form of appropriation; the audiophile invests labour into the commodity, thus making it his own' (2009: 14) - once more, it is significant to note that the audiophile is gendered. The combined practices of kit building and tweaking, can therefore be considered as constructing and reinforcing a genderscript rooted in nineteenth century notions of public and private. As my earlier analysis of the phonograph has demonstrated, artifacts that remain closed physically become symbolically scripted as private. The construction of the phonograph as a piece of furniture is representative of this, whereby cabinets served to mask the object's inner workings. Kit building and tweaking can thus be considered in direct opposition to this script, in that technical appropriation is brought to the fore and thus makes the technology visible and malleable, prior to any engagement with sound. However, just as users are afforded agency through this practice, tweaking also contributes to a conception of knowledge that must be effectively understood and articulated in order to participate within the community.

Print media serves as an appropriate case in point, as one's ability to enunciate within the dominant discourse is similarly informed by specific terminology. Eric Barry has recognised the importance of jargon within print media, stating that 'in the science-obsessed 1950s, the customary claims of verisimilitude made by advertisers, journalists, salesmen and phonophiles were redoubled, underwritten by new technical bona fides like frequency response, distortion, and signal-to-noise ratio' (2010: 116), thus legitimising the knowledge necessary to enter the discourse. Rodgers comparably suggests that the terminology and syntax presented within print media assists in the perpetuation of exclusivity, specifically 'militaristic language that inflects contemporary music-production terminology' (2010b: 475). On this point, Rodgers recognises the remarkable involvement of the

military, stating that 'links between audio and military technologies were well established by the 1920s. Broadcast radio developed in conjunction with military investment around World War I, and subsequent amplification and recording technologies emerged directly from wartime expenditures or were funded for their potential military applications' (ibid.). Building upon this argument, Rodgers continues to suggest that there exists a predominantly masculine discourse on sound within contemporary print media that reflects its military origins as a result of these associations. She states that:

'These associations persist today in the terminology of electronic music: DJ's "battle"; a producer "triggers" a sample with a "controller," "executes" a programming "command," types "bang" to send a signal, and tries to prevent a "crash" ... this persistent militaristic terminology and aesthetic priorities of rationalistic precision and control epitomize notions of male technical competence and "hard" mastery in electronic music production. These have been produced and been constituted by their opposite: nontechnical or "soft" knowledges and practices that are coded as female' (Rodgers 2010b: 476).

This is a sentiment shared by Cockburn, who suggests that frequently, in print media, 'technological competence correlates strongly with masculinity and incompetence with femininity' (1986: 78), and that this binary construct is rooted in the divide of public and private space. Rodgers pays particular attention to word choice, suggesting that through a history of gendered development, audio technologies and surrounding discourses have become implicitly masculine. Whilst Rodgers fails to elaborate on this point, my own research has demonstrated that technologies and users can be said to be cumulatively co-constructed as recognised by Oudshoorn and Pinch (2005: 2), with discourses serving to perpetuate the inscribed users and uses of artifacts. As an extension of this concept, Rodgers does however suggest that 'the tools for making electronic music are not innocent: true sound "mediums," they are an interface to ghosts of technoscientific projects past' (2010b: 475). Rodgers is suggesting here that both technologies and their associated discourses are reproduced and inherited by future generations of users and producers. A 'ghost' in this sense can then be considered similar to what Bennett has labelled as a technological precursor (2012b). This echoes Sterne's (2003) assertion that audio developments are inherently cyclical, and furthermore reveals these technologies as embodying a script as proposed by Akrich (1992). The terminology so often articulated as a component of print media is

therefore inscribed upon technologies and perpetuated at the sites of their implementation, more often than not, excluding those seen to deviate from the dominant masculine discourse.

Keir Keightley has suggested that through the reappropriation of audio technology, men were able to enter into a discourse on technology that conformed to more traditional masculine values. More than this, however, he argues that men were also able to reclaim domestic space from women, and thus assume greater territorial control. He states: 'men used hi-fi sound reproduction technology (including its necessary adjunct, the Long Play (LP) record album) to produce a domestic space gendered as masculine' (1996: 150). In order for men to engage with audio technology, then, they not only had to distinguish their involvement from that of women through ideological repositioning and inscription, but additionally by gendering a domestic space as masculine in order to create a genuine physical distance. Reflecting on this point, Rodgers has explained that:

'These values, elaborated on in popular magazines beginning in the 1950s and implemented in common practice, positioned women as threats to the self-contained spaces of hi-fi that men sought to define in middle class homes. Women embodied the very potential for loss of sound quality by threatening men's requisite privacy to inhabit a controlled domestic space in which they could cultivate an aesthetic appreciation of sound' (Rodgers 2010b: 480).

What Rodgers is alluding to here, is the potential for both the discursive and physical distinctions between masculine and feminine involvement to reaffirm each other in the creation of an exclusive discourse that attempts to restrict the involvement of those external to the dominant, masculine group. This insularity can therefore be seen to have led to its association with ideas of extreme prejudice and elitism (as will be explored in further chapters), with Keightley going so far as to call those involved 'a cult of (male) hobbyists' (1996: 150). The use of the opposing words 'cult' and 'hobbyists' is significant, in that they suggest a collective form of devotion to what is predominantly viewed from the outside as a leisure activity. Keightley has further suggested that an involvement with the audio community 'connoted a sense of elevated class, cultural capital and prestige' (ibid.). It is the manifestation of these discursive tropes within contemporary print media texts that, I contend, have undermined what is often identified as audio technology's democratic potential. The analysis of relevant industry magazines presented in the following

chapters (four and five), underlines many of the arguments made herein, and furthermore, provides first hand evidence of the systematic reproduction of these exclusivist discourses that 'other' those not perceived as conforming to the hegemonic conception of knowledge (Foucault 1997; 1980).

3.5 Conclusion

This chapter has shown that knowledge of audio technology is not only socially constructed, but also intrinsically linked to nineteenth century notions of the public and private spheres, alongside binaristic perceptions of masculinity and femininity; legitimacy and illegitimacy. The apparent exclusivity of print media discourse can be seen to have been established through a reliance upon performances of masculinity, the exhibition of technical knowledge, and the procurement of domestic spaces that served to establish a physical boundary from those considered exterior to the audio community. In doing so, participants were, and are still, able to distinguish themselves from mainstream consumers and media discourses, whilst simultaneously forming social bonds that reaffirm their collective enunciations of legitimacy. This underlines what Heward (2009) has discussed as the 'privileging of knowledge' (2009: 1) in the creation of a social hierarchy based on othering. In doing so, the supposed democratic potential of print media and audio technologies are perpetually undermined. Through the operation of exclusivity, audio technology print media deprives itself of diversity whilst simultaneously reaffirming the institutionalised beliefs upon which it was constructed, thus promoting demographic homogeneity. Within this chapter, responses were formulated and presented to the research questions outlined in Chapter One, focussing particularly on the mechanisms in place that have facilitated the establishment of privileged masculine gender performances. The following analysis of contemporary print media discourse builds upon these responses, and furthermore, provides primary evidence of the processes that *maintain* a hegemonic masculine authority despite its supposed democratic potential.

Chapter Four: Comparative Discourse Analysis of *Tape Op* Magazine

This chapter critically analyses, as a primary source, the audio technology magazine *Tape Op*, in order to illuminate the ubiquitous nature of masculinity and gear fetishism (outlined in previous chapters) within audio technology print media discourse, and the methods used in their dissemination. Drawing upon conceptual frames from social construction of technology studies (SCOTS) and the analytic devices of script (Akrich 1992: 208), genderscript (van Oost 2005: 194-196) and the antiprogram (Akrich and Latour 1992: 261), I explore the discursive tropes of masculinity and gear fetishism in the formation of a conception of knowledge as defined by Foucault (1997: 181-182). In doing so, I suggest that knowledge forms a prerequisite to participation within *Tape Op*, and thus has the potential effect of excluding specific demographics. That is to say that access to knowledge is effectively policed, ensuring that only a select few maintain access to the *Tape Op* community. The 'democratic' potential of audio technologies are therefore similarly investigated by drawing upon the work of Théberge (1997), Heward (2009) and Tomaz de Carvalho (2012). A definition of community is once more informed by the work of Théberge and his concept of commonality as detailed in previous chapters (1997: 136). Extending this notion here, community members can also be defined as those who signify as such. In other words, within the context of *Tape Op* magazine, participants who write letters and engage in discussion will be considered as signifying and thus contributing to a sense of community. Readers' letters and contributions will thus be used as primary evidence in an analysis of the magazines participatory potential and its capacity for exclusion.

I focus on *Tape Op* as a key publication for analysis, as it represents a highly unique approach towards facilitating community participation and interaction. As discussed in Chapter Three, magazines have a significant impact in determining the nature of communication within their associated communities by serving as a mediation junction (Schot and Albert de la Bruheze 2005: 234). Extending this concept to the field of audio technology as Heward does (2009: 21), one can then begin to understand the interdependent development of print media and their community participants in the perpetuation of exclusive discursive tropes. Douglas (2004), Heward (2009), Keightley (1996) and Perlman (2004) have all demonstrated

the significance of print media in establishing and documenting a specialised discourse as I have discussed in the previous chapters. The research presented here builds upon this work by investigating the formation of this discourse using primary sources, and in doing so, serves as an original contribution to knowledge.

In analysing sources taken from *Tape Op* magazine, I employ the qualitative research methodology of Foucauldian discourse analysis as derived from *The Archaeology of Knowledge* (1997). I utilise discourse analysis in order to investigate what Foucault terms the 'enunciative function' of the audio technology domain and, in doing so, focus on power relationships as expressed through language within print media texts, and additionally investigate how figures within the domain express authority and dominance within a regimented, and oftentimes hierarchical, structure (Foucault 1997: 88). As an extension of this, I also investigate how the structural composition of *Tape Op* serves to promote and solidify specific forms of enunciation but also allows for resistance, or rupture, by functioning in a somewhat rhizomatic capacity as informed by the seminal work of Deleuze and Guattari, *A Thousand Plateaus* (2011) and explored in greater depth in section 4.2.

The nature and construction of the discourse analysed (including its many unique features) can be seen as being defined by the specificities of *Tape Op* itself. In other words, the style, format and content of the text, as well as the various corporate sponsors involved, all contribute to a more localised discourse that distinguishes one magazine from another. An exploration of these distinguishing features is made possible through an account of primary sources such as reader-generated content, first-hand interviews and statistical analyses, that enables a closer examination of the interplay between industry manufacturers, mediators and readers. In doing so, specific attention is given to the power relationships involved between the various actors, as well as their individual and collective potential to inscribe and de-inscribe print media artifacts (Oudshoorn and Pinch 2005: 10). I investigate the readership demographic, as well as the nature of their engagement with editors, and consider how both parties respond to and similarly, construct the 'script' (Akrich 1992: 208) of *Tape Op*. To contextualise this detailed analysis, and in order to frame later discussion, it is first necessary to present an overview of *Tape Op* magazine. In doing so, I identify its origins, editorial and structural composition, distribution model and other practical details that facilitate interaction with the readership, as it is only through an understanding of

these details that one can begin to analyse their collective and interdependent impact upon discourse.

The material for an analysis of *Tape Op* was gathered by conducting extensive first-hand research consisting of an interview with editor Larry Crane (Appendix A) and the comprehensive discourse analysis of archival material from issues eleven (1999) through to ninety-five (2013). Issues prior to number eleven were unavailable in their original format due to a change in licensing agreements and thus a lack of online or further print re-publication⁶. These issues have however been published as part of a compilation text by Crane entitled *Tape Op: The Book About Creative Music Recording, Volume 1* (2001) which was used as a reference guide in the absence of traditional, unedited archive material. In light of this, where possible, citations to online versions of *Tape Op* texts were given in order to circumvent difficulties in attaining print copies for future researchers.

I elected to conduct interviews with members of staff in order to present an understanding of how mediators view their practices, and thus complement the inclusion of reader-generated content. The significance of interviews in presenting an understanding of the audio technology community has been recognised by Albin Zak who suggests that 'the inclusion ... of interviews with significant figures in record production represents an ongoing history project, for the oral accounts of practitioners, though problematic, are among our most useful resources' (2011). Key to developing an understanding of the interplay between the magazine's various actors was also the letters section, which provided insight into the organisational structure of the magazine, as well as its contemporaneous reception and influence upon discourse. Reader-generated content was also particularly useful in illustrating the mutual co-construction of artifacts (such as the text itself) and their users (Oudshoorn and Pinch 2005: 2).

It should be noted here that the analysis of reader generated content draws largely on issues up to and including seventy-four, in order to assess the emergence of discourses concerned with audio technology's democratic potential in line with the research questions outlined in Chapter One. As Chapter Two has demonstrated, these discourses were established in coincidence with the development of the technology itself, typically within the last thirty years. Online

⁶ When asked specifically about the licensing agreements, Crane stated that: 'Those issues were published before my partner John came aboard. I then sold the rights to Feral House to do a book of 1-10. We recently bought the rights back but need to reprint the book and scan the old issues as the layout was by me on paper. Plus some covers need to be resourced from old digital files' (Annetts 2015).

material was therefore not considered for analysis, due to the later emergence of online forums and the immediacy of internet communication which rendered further analysis to be somewhat unrepresentative of the dominant mode of discourse formation on this specific topic. This is not to suggest that such sources are beyond consideration however, and would be a suitable extension of the research conducted herein for future works.

When prompted during an interview (Appendix A) to discuss the changing nature of written communication between *Tape Op* and its readership, Crane pointed to the ubiquity of internet communication with regards to a decline in written submissions:

'I did have an active letters section by issue number 2. It's been slimmer lately, as most people use the internet for instant gratification instead of waiting for 2 months to read a reply! It's nice to see vetted responses in lieu of the ragtag mess that most online forums end up being' (Annetts 2013).

Posting on the online *Tape Op* message board (TOMB) in December 2009, Crane further appeals to the online community for input as to the decline in print media interaction:

'Hey friends! For some reason we're getting a lot less letters to the magazine these days. What gives? Do you hate us? We're lonely. We're worried that the letters section of the mag might atrophy and fall off. That'd be a shame. ... I've wondered about the effects the message board has on the letters section! I know it's nice to get quicker feedback than waiting 3 months or something' (Crane 2009).

In light of these statements, the accompanying print issue to the TOMB statement (seventy-four) therefore seemed an appropriate point at which to cease detailed analysis of the printed letters section. This is not to suggest however that the letters section is now redundant, but rather that revealing, often terse, comments indicative of contemporary discourse and the democratic potential of audio tools, are largely fielded through online fora. In its contemporary configuration, the *Tape Op* letters section remains active, but more often than not, is harnessed as a space for presenting commentary on the magazine itself⁷.

⁷ For a rather typical example, see *Tape Op*#106, Mar/Apr, 2015, p.12.

It is also important to recognise and understand that the themes and findings discussed herein are specific to the associated print media community and, in turn, to the contemporary reception of the topics discussed. As an additional point, it is also important to note that specific instances of *Tape Op*'s publication history are often addressed more frequently due to the presence of discourses immediately dealing with tropes of gear fetishism and masculinity and in particular, discourses that provide fodder for questioning the democratic potential of audio tools.

4.1 Foucault and The Archaeology of Knowledge

Through the prism of Foucauldian discourse analysis, the following corpus of *Tape Op* magazine will be viewed as forming an archive, that is, a collection of material traces produced by a specific culture or community. More than this, however, Foucault offers a definition which proves useful in understanding how archives such as *Tape Op* facilitate specific forms of enunciation and thus discursive practices, by detailing how participation is restricted or permitted through the negotiation of power and knowledge. Foucault writes:

‘The archive is first the law of what can be said, the system that governs the appearance of statements of unique events. ... The archive is not that which, despite its immediate escape, safeguards the event of the statement ... it is that which ... defines at the outset *the system of its enunciability*’ (Foucault 1997: 129).

Therefore, when investigating *Tape Op* magazine one must retain an awareness of the text as both an archive in the traditional sense, but also as a complex system of rules. Indeed, the premise of Foucault's entire archaeological methodology is that systems of knowledge (or epistemes) are governed by rules beyond those of grammar and traditional understandings of archived historical documentation. Foucauldian discourse analysis ‘does not replace a logical analysis of propositions, a grammatical analysis of sentences’, it is instead ‘another way of attacking verbal performances, of dissociating their complexity, of isolating the terms that are entangled in its web, and of locating the various regularities that they obey’ (Foucault 1997: 108). I am therefore primarily concerned with unpacking the system that facilitates the actions and inactions of individual subjects by seeking to understand their potential agency within a specific domain and period.

The social constructivist methodologies outlined in Chapter Two are thus equally useful here in exploring the agency of community participants, and ascertaining whether or not, and to what extent, participants can 'script' (Akrich 1992: 208) the archive of *Tape Op* (the system of enunciability) within the scope outlined by the enunciative function itself. It is possible in fact, that the community participants of *Tape Op* are merely enacting possibilities of a finite and predetermined assortment of scripts, and thus it is questionable as to whether or not they are able to rupture the dominant discourse or enact the so-called 'antiprogram' (Akrich and Latour 1992: 261). Thus whilst Oudshoorn and Pinch have expressed an interest in 'studying what users do with technology' as well as 'what technologies do to users' (2005: 2), the very nature of agency is inevitably influenced by the dominant discourse and its enunciative function as Foucault has observed with respect to the archive:

'Between the *language (langue)* that defines the system of constructing possible sentences, and the *corpus* that passively collects the words that are spoken, the *archive* defines a particular level: that of a practice that causes a multiplicity of statements to emerge as so many regular events ... it reveals the rules of a practice that enables statements both to survive and to undergo regular modification. It is *the general system of the formation and transformation of statements.*' (Foucault 1997: 130).

Within this chapter, the reproduction of power relationships and hierarchies is explored within the *Tape Op* archive through the tropes of masculinity and gear fetishism; both of which are, I contend, inextricably linked to expressions of knowledge, authority and dominance as components of discourse. By applying both Foucauldian discourse analysis and methodologies from within SCOTS, it becomes possible to deconstruct the 'authority' of recordists as demonstrated by the work of Alice Tomaz de Carvalho (2012) and in doing so, better understand the perpetuation of exclusivity within audio communities. The aforementioned tropes are particularly present within the magazines user generated content, specifically the letters section of *Tape Op*, where community members perform the enunciative function of this specific community.

It is significant to note here, that the importance of the domain, specifically the underlying rules of enunciation within this domain, have also been recognised within the field of social construction of technology studies (Oudshoorn and Pinch 2005: 10). Thompson and McIntyre have suggested that specialist disciplines

require 'domain acquisition' (2013), that is the appropriation and articulation of knowledge, power and relevant skill sets in order for one to participate. For Foucault, the enunciative function 'cannot operate without the existence of an associated domain' (Foucault 1997: 96). That is, 'the associated field ... to which the statement refers (implicitly or not), either by repeating them, modifying them, or adapting them, or by opposing them, or by commenting on them; there can be no statement that in one way or another does not reactualize others' (Foucault 1997: 98). Therefore, through the analysis of specific archives such as *Tape Op*, one is able to determine not only the domain, but additionally, the enunciative function and thus the historical *a priori*. On this point, Foucault explains that:

'Different *oeuvres*, ... that whole mass of texts that belong to a single discursive formation - and so many authors who know or do not know one another, criticize one another, invalidate one another, ... meet without knowing it and obstinately intersect their unique discourses in a web of which they are not the masters, of which they cannot see the whole, and of whose breadth they have a very inadequate idea - all these various figures and individuals do not communicate solely by the logical succession of propositions that they advance, nor by the recurrence of themes ... they communicate by the form of positivity of their discourse, or more exactly, this form of positivity (and the conditions of operation of the enunciative function) defines a field in which formal identities, thematic continuities, translation of concepts, and polemical interchanges may be deployed. Thus positivity plays the role of what might be called a *historical a priori*.' (Foucault 1997: 126-127).

It is important to note here that whilst the enunciative function can be said to script the potential actions of users (thus restricting possibilities for rupture), power can also be understood as a productive force (Foucault 1977: 119). Within the context of this chapter, rupture of the hegemonic discourse (understood as a productive force) is investigated through an analysis of *Tape Op* magazine's structural composition and professional practices. In particular, the concept of rhizomatic organisation as discussed by Deleuze and Guattari (2011) is used as a prism through which to view *Tape Op* and is described in detail below in section 4.2. Of particular interest to my research is the 'more multiple, lateral, and circular system of ramification, rather than a dichotomous one' (Deleuze and Guattari 2011: 5) within the context of rhizomes. In particular how multiplicities are potentially facilitated through *Tape Op*'s adoption of a more horizontal and thus potentially multiplicitous or rhizomatic-like structure. I argue that *Tape Op* allows for the partial

breakdown of traditional hierarchies and power relationships that I have previously demonstrated to be rooted in a simplistic dichotomy.

Before a more detailed investigation into the discursive practices and structural composition of *Tape Op* can be presented, however, it is first necessary to further explore the terminology of Foucault with respect to discourse and statements so as to better understand the formation of the enunciative function articulated within this archive. Foucault states that 'the term discourse can be defined as a group of statements that belong to a single system of formation' (Foucault 1997: 107), a system which, in the case of my own research, underpins the *Tape Op* archive and perhaps additionally, the historical a priori of audio technology. Foucault continues:

'We shall call discourse a group of statements in so far as they belong to the same discursive formation; it does not form a rhetorical or formal unity, endlessly repeatable, whose appearance or use in history might be indicated (and, if necessary, explained); it is made up of a limited number of statements for which a group of conditions of existence can be defined' (Foucault 1997: 117).

Thus a discursive formation is the assembly of a series of statements conditioned by a specific set of rules: 'a group of rules proper to discursive practice. These rules define not ... the canonical use of a vocabulary, but the ordering of objects' (Foucault 1997: 49). To clarify this last point, it is important to note that Foucault differentiates between the object and the subject. The subject can be considered as an entity that is self-aware and thus capable of choosing how to act. In contrast, objects, inasmuch as they are able to act as defined by the enunciative function, work only in support of the subject. To elaborate further, the subject can be considered as follows:

'(he who establishes the definition of a straight line is also he who states it; he who posits the existence of a finite series is also, and at the same time, he who states it); and in each case, the subject links, by means of this operation and the statement in which it is embodied, his future statements and operations (as an enunciating subject, he accepts this statement as his own law)' (Foucault 1997: 95).

In relation to the passage above, the object can be considered to re-state, accept and thus normalise statements, re-establishing and perpetuating the enunciation of the initial subject. In this respect, one's attention is again drawn to the parallels with

social construction of technology texts concerning the agency of discursive participants (Oudshoorn and Pinch 2005; Akrich 1992). This is reinforced when one also begins to more closely examine the possible agency of both the subject and the object. Foucault states that 'the rule of materiality that statements necessarily obey is therefore of the order of the institution rather than of the spatio-temporal localization; it defines *possibilities of reinscription and transcription* (but also thresholds and limits), rather than limited and perishable individualities' (Foucault 1997: 103). The agency of both the object and subject are thus defined by the institution, or in the case of *Tape Op*, the magazine itself. Within this materiality, agents are capable of reinscription and transcription, but are nonetheless restricted by the limitations of the domain and enunciative function. As Foucault suggests: 'the statement is divided up into an enunciative field in which it has a place and a status, which arranges for its possible relations with the past, and which opens up for it a possible future' (Foucault 1997: 99). As previously noted, this can be considered to impede possibilities for rupture, but as I will demonstrate in section 4.2, the less strictly regulated and more rhizomatic structural composition of *Tape Op* can be considered as facilitating a form of resistance to the dominant practices of reinscription and transcription.

It is important to note that the Foucauldian approach to discourse analysis takes as its source, the statement. Statements may only be understood by taking into consideration their original enunciative composition, form or 'material status' and their situation within the original domain's 'co-ordinates' (Foucault 1997: 100). That is to say that: 'even if a sentence is composed of the same words, bears exactly the same meaning, and preserves the same syntactical and semantic identity, it does not constitute the same statement if it is spoken by someone in the course of a conversation, or printed in a novel' (ibid.). This proves to be particularly important when considering notions of exclusivity and hierarchy within specific domains, as statements can thus be considered as being impenetrable to those not privy to the relevant coordinates or material status. The following analysis of technology print media is therefore concerned with interrogating statements in order to unravel the power structures and hierarchies that result in the perpetuation of exclusivity through masculinity and gear fetishism.

When considering exclusivity, one must take into consideration the privilege of the subject. In addition to specifying the enunciative function (and thus that which is enunciated), the subject, and therefore the statements within *Tape Op*, (or indeed

any institution), similarly specify the right to speech, the right to understanding, and ultimately, the right of access to the community itself as Foucault has astutely observed:

‘In our societies ... the property of discourse - in the sense of the right to speak, ability to understand, licit and immediate access to the corpus of already formulated statements, and the capacity to invest this discourse in decisions, institutions or practices - is in fact confined (sometimes with the addition of legal sanctions) to a particular group of individuals’ (Foucault 1997: 68).

He continues by stating that ‘there may in fact be - and probably always are - in the conditions of emergence of statements, exclusions, limits, or gaps that divide up their referential, validate only one series of modalities, enclose groups of co-existence, and prevent certain forms of use’ (Foucault 1997: 110). It is this series of exclusions and enclosures that form the focal point of this chapter, taking the archive of *Tape Op* as a singular example of what I have previously demonstrated as being a fairly isolated domain. Here, I am specifically referring to culture in the Foucauldian sense, which is to define it as ‘a hierarchical organization of values, accessible to everybody, but at the same time the occasion of a mechanism of selection and exclusion’ (Foucault 2001: 173). *Tape Op* magazine can thus be considered as a cultural institution in that particular relations of power are perpetuated so that certain demographics are advantaged over others. Exclusivity is thus inextricably linked to perceptions and articulations of power and knowledge within the associated discourse, made by the dominant subject. In this respect, it is necessary to question throughout my analysis - as Jean-Francois Lyotard does - ‘who decides what knowledge is, and who knows what needs to be decided?’ (1997: 8-9), as ‘knowledge and power are simply two sides of the same question’ (ibid.).

4.2 Tape Op Magazine and the Rhizome

Founded in April 1996 by Jackpot! Recording Studios owner and engineer Larry Crane (Crane 2013a), *Tape Op* is an independently operated and distributed bi-monthly audio magazine with a focus on the practical, creative application of technology. In an account of the magazine, Jonathan Sterne writes that *Tape Op* ‘bills itself as a magazine about “creative music recording” and each issue comes packed with interviews, home recording ideas and reviews of recordings made by

readers' (2000). The focus on creativity that Sterne highlights is one of the fundamental ways in which *Tape Op* seeks to distinguish itself from other specialist audio publications, and as a result, is one of the key reasons for its selection for analysis in this chapter. When asked during an interview (Appendix A) about the origins of the magazine and what the publication sought to achieve, editor Larry Crane offered the following:

'In 1996 I was studying as much as I could about recording. When I picked up the other music recording magazines I felt like they never wrote about creating the music I enjoyed, and that their aim seemed to be to get the readers to desire new recording products as opposed to inspiring people to record and to be creative. Some seemed to be orientated towards middle aged male hobbyists, and they still appear that way to me. I just wanted to do something different that related to my situation. And I'm still learning!' (Annetts 2013).

From this we can discern that a focus on the creative application of technology was established, in part, due to what were perceived as inadequacies within the audio technology press at that time. Specifically, the fetishisation of technology or 'gear' (Théberge 1997: 108), as well as the limited target demographic of the magazines. As Baym (2014) has recently observed, these are elements that serve to exclude rather than include recordists, and thus can be seen to form an impediment to participation. In contrast, by maintaining an emphasis on creativity, *Tape Op* is able to convey a marginal sense of inclusivity by seeking to avoid excluding or 'othering' individuals based on their perceived economic power - in terms of purchasing new equipment (Tomaz de Carvalho 2012) - or gender in relation to the performance of masculinity (Heward 2009; Horrocks 1995; Butler 1990). As a consequence, *Tape Op* can be considered to facilitate interaction that is more horizontal in nature, as participation is no longer restricted by material means or adherence to what Rodgers calls a masculine discourse (2010b: 476). By maintaining a focus on creative practice rather than emphasising passive consumption, *Tape Op* can be seen to function in a less exclusive capacity than similar specialist publications such as *Sound On Sound*, where much of the page count is dedicated to product reviews (for a more detailed comparison see Chapter Five). The script of *Tape Op*, then, can be said to encourage participation, if only through its emphasis upon creativity over consumption.

It is important to clarify at this point what is meant by horizontal within the context of this chapter, and in particular with respect to the organisation of *Tape Op*.

In the first instance, the magazine can be said to, at times, assume a similar form to the rhizomatic structures positioned by Deleuze and Guattari in *A Thousand Plateaus* (2011). Here, rhizomes are defined by 'principles of connection and heterogeneity: any point of a rhizome can be connected to anything other, and must be. This is very different from the tree or root, which plots a point, fixes an order' (Deleuze and Guattari 2011: 7-8). Horizontal structures thus allow for individuality and multiplicity to flourish rather than establishing a formal and systematic order. *Tape Op*'s respective multiplicity is best represented by its adoption of interview transcripts and the inclusion of user-generated content in the form of a strong letters section. As such, the *Tape Op* archive allows for the partial destratification of mono-directional power relationships. By this, I mean to suggest that the modes of enunciation within the magazine work to establish greater points of connection between strata (or agents) that, within a traditional hierarchy, would not be in contact. Thus to be considered rhizomorphic, one must produce points of connection that move beyond the hierarchical: 'to be rhizomorphic is to produce stems and filaments that seem to be roots, or better yet connect with them by penetrating the trunk, but put them to strange new uses' (Deleuze and Guattari 2011: 17). By contributing letters to *Tape Op*, members of the community make themselves perceptible or visible, thus they move from private to public space and are therefore subject to the collective assemblages of enunciation as discussed by Deleuze and Guattari (2011: 8) as well as Foucault (1997: 99). Whilst this necessarily entails an exposure to the rules of the domain and the enunciative function, it additionally allows for rupture, as multiplicities are capable of emerging and 'penetrating the trunk' (Deleuze and Guattari 2011: 17).

In order to better understand what is meant by multiplicities, it is useful to consider their relation to dichotomies that, I argue, underpin the exclusive tropes of masculinity and gear fetishism. Taking the latter as an example, gear fetishism functions by always relating one (the object) to another (the subject) (Foucault 1997: 45, 95), thus products are necessarily defined comparatively within this dichotomy. In contrast, multiplicities are rhizomatic as they destratify these relations:

'Multiplicity has neither subject nor object, only determinations, magnitudes, and dimensions that cannot increase in number without the multiplicity changing in nature (the laws of combination therefore increase in number as the multiplicity grows) ... There are no points or positions in a rhizome, such as those found in a structure, tree or root. There are only lines' (Deleuze and Guattari 2011: 8-9).

Deleuze and Guattari, in discussing the possible ‘determinations’ of root structures, examine the possibilities for alternative organisations to circumvent the mono-directional distribution of power and agency. Whilst object/subject dichotomies encourage binaristic models of conflict and resolution, multiplicitous structures preclude their very being, as an emphasis is maintained upon ‘magnitudes’ and thus the relative meditative potential of various agents. In order to perhaps better understand the multiplicitous and thus non-absolute discourse of *Tape Op*, it is useful to investigate the trope of gear fetishism at this point, beginning with editor Larry Crane’s perception of its presence within the wider audio technology domain:

‘In relation to recording equipment, I seek to tell the readers about tools that can help them be creative. There is a lot of great gear out there. I get pretty bored by the talk about recording equipment though. I like music, and I like being creative, so to me it’s all about having tools to help you get the job done. I once had an asshole tell me “You can’t make a great record on that console”, when I’d told him what I had at my studio at the time. All of his gear was top of the line vintage and all was in storage. Obviously no great records were being made on his gear’ (Annetts 2013).

Here, Crane specifically acknowledges the widespread fixation on recording equipment as a commodity of knowledge, and additionally, the extent to which this exclusive trope has become established as a component of the dominant audio technology discourse. This has similarly been identified by Théberge who writes: ‘gear, gear, gear. Contemporary musicians’ magazines promote an entire philosophy of music-making centered around the values of consumption’ (1997: 108), a sentiment with clear parallels to the work of Marx (1887 [2015]) as previously discussed in Chapter Two. Crane’s reticence to perpetuate this trope is evidenced through his choice of anecdote, that not only serves to highlight the means through which gear fetishism contributes to a conception of knowledge, but furthermore, how this knowledge can effectively undermine the democratic potential of consumer audio technologies as argued by both Théberge (1997) and Heward (2009). In addition, Crane also refers to the limited diversity of similar print media communities, citing narrow target demographics as an impediment to participation. His suggestion that ‘some [magazines] seemed to be orientated towards middle aged male hobbyists’ (Annetts 2013) supposes that the available literature conveys

a sense of exclusivity by rejecting those outside of this specific audience. It is significant to note the interdependent development of masculinity and gear fetishism in this response, and in particular how both serve to establish a conception of knowledge within discourse. On the subject of knowledge with respect to audio technology, Théberge suggests:

‘This idea - that technology has become a tie that binds - is the implicit guiding assumption pervading much of the content of new musicians’ magazines ... Technology has become transparent, “a form of communication,” a “language” itself. If you learn to “speak” technology, that is, if you become a consumer of technological products, you are immediately admitted, or so it would seem, into that international fraternity’ (Théberge 1997: 127).

The use of the word ‘fraternity’ (ibid.) here, is significant in that characterises the audio community as a predominantly masculine space, as Baym (2014), Rodgers (2010), Heward (2009), Marie Smith (2009) and Douglas (2004) have similarly observed. The masculine genderscript of the audio technology domain is reflected and reinforced within the associated print media discourse and surrounding communities, which function as sites of inscription and reproduction (Oudshoorn and Pinch 2005; Foucault 1997: 103). The dominant conception of knowledge, established through gear fetishism and notions of masculinity, therefore perpetually restricts accommodation and thus participation, to a select few.

It is worth recognising here, that despite Crane’s recognition of audio community homogeneity, *Tape Op* itself typifies this model as confirmed by the magazine’s demographic statistics. Online publisher and web developer Dave Middleton (Appendix B) states that ‘Tape Op currently has a gender split of 96% male to 4% female, with an average age of 37 years old’ (Annetts 2013). The magazine can thus be considered, from a statistical point of view at least, to embody the very deficiencies it initially sought to address with respect to gender imbalance. This proves to be particularly true when comparing the demographic of *Tape Op* with a more general census of technical, musicians’ magazines:

‘As for the community of readers themselves, the surveys reveal that they are largely young and male - as high as 98 percent of survey respondents in magazines devoted to new technology - thus reflecting the more general male dominance of popular music and, more specifically, the male orientation of technical culture’ (Théberge 1997: 122).

In order to better understand and contextualise these statistics, a closer examination of the nature of communication within the *Tape Op* community is necessary. The nature of readership engagement in particular, as conveyed through both the body of the magazine text and additionally through the editorial and user generated letters section serves this purpose, by allowing for a detailed discourse analysis.

In the first instance, Sterne cites the *Tape Op* format itself as being fundamental to facilitating modes of interaction that break down what Crane observes as the fetishisation of technology within the dominant audience demographic, the 'middle-aged male hobbyists' (Annetts 2013). Sterne suggests that:

'Tape Op's interview format is particularly important to its success: recording is discussed as a lived experience. Even interviewees who are obsessed with the gear in their studios talk about it in the context of how it's used, how they've recorded this or that, how they got their start in audio engineering. They talk about their likes and dislikes, their approaches to music, how they relate to the people they're recording, and their favorite tricks' (Sterne 2000).

This statement reaffirms Crane's concept of creative music recording and the construction of the reader as a creator. By emphasising the practical application of the technology and the reasoning behind its use, there arguably exists the possibility for broader participation through the lack of exclusion based on a hierarchy of knowledge and fetishised gear acquisition. It should be recognised here that *Tape Op* articles almost exclusively consist of interview transcripts, providing the reader with both the questions asked and the responses received. This format lends the magazine a degree of perceptible transparency from the perspective of the reader, as an emphasis is placed on interaction that is dialogical rather than didactic. The discussions surrounding technology and its application are thus contextualised for the reader through their presence in a meaningful dialogue, as Sterne continues:

'Of course Tape Op also features plenty of talk about gear. Any good engineer will tell you that microphones, mixers, and signal processors are as variable as musical instruments. But most of their pages discuss making the best of what you've got, and that's what makes *Tape Op* so fresh. In fact, this is Crane's motto, and as he is getting

more attention for *Tape Op*, Crane is bringing this message to a larger audience. *Tape Op* takes cheap cassette-based recorders as seriously as the latest computer-based technology. They have articles on how to find and modify inexpensive microphones, places to find stuff that other people may have thrown out, and how to modify the equipment you already own. *Tape Op* also interviews artists who have made careers out of recording in their bedrooms' (Sterne 2000).

Although Sterne speaks favourably of the changes *Tape Op* attempts to facilitate with regards to audio technology print media, it is important to understand the ways in which the community and its dialogue also impact upon this discourse. As Mowitt has recognised, 'subjectivity acquires its irreducibly social character from the fact that experience takes place within a cultural context organised by institutions and practices' (2012: 213). The community dialogue can therefore only be as broad and considered as the institution itself, and the articulation and construction of discourse it facilitates. Therefore, one must critically engage with reader-generated content in order to evaluate the reception of editorial material and understand its impact upon the print media discourse in a broader context.

Discussing the organisational structure of the magazine and his thought process behind the establishment of the *Tape Op* community letters section, Crane has offered the following:

'I really just churn out an issue when the edit is due and the letters section kinda grew for a while. We had more pages then and it was a fun way to fill them ... Doing *Tape Op* is fun, and opens doors to meeting cool people and such' (Annetts 2013).

Whilst Crane may not have consciously organised the letters section to accommodate or advance any particular ideology, his statement is useful in understanding the model of community engagement *Tape Op* facilitates. To elaborate, letters sent to *Tape Op* are frequently commented upon by members of the editorial team, as well as industry practitioners and other readers. The magazine can therefore be said to act as a facilitator in its capacity to create dynamic conversations that draw from a variety of contributors, and thus spheres, in a multiplicitous fashion, echoing the rhizomatic (Deleuze and Guattari 2011: 7-8). In this way, the traditional hierarchical and mono-directional transfer of knowledge as a result of editorial authorship and magazine ownership are partially destratified, allowing for the conduction of more open dialogues, inclusive of queries and comments within the dominant discourse. The *Tape Op* letters section therefore

serves as a hub for debate and discussion and thus functions in direct contrast to what my research in the previous chapters has demonstrated to be a hierarchical and largely exclusive community. A letter submitted to issue 25 of the magazine demonstrates this:

'I'm writing in defense of Chris Knox's cover art! (Issue #22) What people, like Tery Daly, who slagged the cover, are missing is that there are some of us out here that are still just starting out. Seeing Chris' cover of a musician struggling with even the most simplistic of studio devices has a big humanizing effect on something some musicians are too afraid to even attempt... recording their own music at home! It is the most humanly "friendly" recording magazine cover I think I've ever seen. Yeah, some of you guys are out there with a few thousand invested in one microphone alone, but there are lots of us little folks still struggling with the basics. Chris remembers those times, so do you Larry, and that's what makes this magazine, and Chris Knox, so influential and important, to us "beginners"!' (Saranchuk 2001).

From this letter we can observe that the author, Saranchuk, directly addresses another reader in their response, creating a dialogue surrounding what we can infer to be a contentious issue. Saranchuk similarly hints at *Tape Op*'s inclusive structure by drawing attention to the magazine cover (Appendix D). Of particular interest here, is Saranchuk's open acknowledgement of the prevailing trope of gear fetishism that typifies audio technology discourse and interaction. The magazine itself can therefore be seen as facilitating the establishment of a *dialogue* essential to the deconstruction of an exclusive conception of knowledge rooted in the complex intersections of class (economic power) and gender (masculinity) as previously examined. Furthermore, the destratification present in the letters section works in parallel with the magazine's overall interview structure, to break down the traditional dichotomy that distinguishes between the 'pro' and the 'serious' recordist within the audio technology community (Tomaz de Carvalho 2012). Prominent producers such as Steve Albini and Jack Endino frequently comment on the community's questions and queries with their own anecdotes and experiences alongside other readers and the editorial team. Through this practice, *Tape Op* effectively unites what are typically presented as discrete domains. To clarify this point, it is worth looking again at rhizomatic formations, as their construction provides a useful analogy for *Tape Op* in this respect. In his preface for *A Thousand Plateaus* (2011), Brian Massumi states that:

'Rather than analyzing the world into discrete components, reducing their manyness to the One of identity, and ordering them by rank, [the rhizome] sums up a discrete set of disparate circumstances in a shattering blow. It synthesizes a multiplicity of elements without effacing their heterogeneity or hindering their potential for future rearranging (to the contrary)' (Massumi in Deleuze and Guattari 2011: xiii).

In other words, a collective potential of knowledge is drawn upon and aligned as a means of responding to the needs of the audio community, but that this does not necessitate a hierarchical arrangement or 'ordering them by rank' (ibid.) thus eliminating the respective domains' diversity. The following contribution taken from issue 26 is representative of this alignment, and its inclusion here serves to emphasise the degree to which *Tape Op* remains a predominantly multiplicitous space:

'I'm sure I will be lashed to the pyre and ignited for this heresy but I would like to state for the record that Mr. Albini needs his head degaussed if he thinks Pro Tools to be slow! Sonic qualities aside, it seems the man's logic azimuth is slightly skewed in regards to this issue. In reference to his statement about making a decent record in the "Pro Tools environment", I couldn't help pondering a hypothetical situation in which he had to choose between listening to say, Little Richard singing "Tutti Frutti" recorded in Pro Tools or Pat Boone laying down the same hot number on 2" analog. Perhaps that's a bad question to ask of one who feels engineering is really a technical endeavor. I sometimes wonder if being over-biased is always a good thing in the analog world! Like everyone else, I do enjoy your mag. Thank you for the platform!' (Gal 2001).

Evidence of the aforementioned destratification with respect to communication can be witnessed by turning one's attention to the response offered to the letter's author. Steve Albini, the engineer directly addressed within the letter above, engages with the author by offering a response: 'Looks like he got me. Turns out I'm an idiot' (Albini 2001). Although the exchange is rather limited, Albini's response is illuminating in that it becomes possible to witness the radically different manner of interaction present within *Tape Op* in comparison to similar specialist publications. The informality and sarcastic tone of Albini's letter is particularly telling, and is suggestive of a more horizontal and vernacular mode of communication that facilitates open dialogue, a feature that contrasts strongly with the heavily stratified

question and answer style discourses featured within *Sound On Sound* as a feature of its rigid structural composition (see Chapter Five).

By creating open dialogues where potentially all voices are considered and most significantly, represented, the *Tape Op* letters section serves to counteract the conception of a hierarchy based on knowledge. The responses and comments provided, as well as the submitted letters, are considered to be of value regardless of their respective authors position within the industry. In this way, contribution and interaction may be considered to be of greater value to the community than the aforementioned articulation of specific knowledge. In this way, contribution to the community discourse can be considered as a potential (albeit limited) form of rupture (Deleuze and Guattari 2011: 10; Foucault 1997), in that it resembles what Deleuze and Guattari term nomad thought and space. As Brian Massumi states: 'the modus operandi of nomad thought is affirmation, even when its apparent object is negative. Force is not to be confused with power. Force arrives from the outside to break constraints and open new vistas. Power builds walls' (Massumi in Deleuze and Guattari 2011: xiii). He continues:

'State space is "striated," or gridded. Movement in it is confined ... to preset paths between fixed and identifiable points. Nomad space is "smooth," or open ended. One can rise up at any point and move to any other' (Massumi in Deleuze and Guattari 2011: xiii).

Here, Massumi draws attention to the interconnections between agents within nomad space, a feature that resembles that partially destratified communicative model of *Tape Op*. Whilst specialist audio publications such as *Sound On Sound* remain heavily striated, the *Tape Op* community letters section offers possibilities for rupture through the freedom of movement and force (not power), due to its comparatively rhizomatic-like structural composition. Expanding upon the definition of the rhizome presented earlier, Deleuze and Guattari state that:

'Every rhizome contains lines of segmentarity ... These lines always tie back to one another. That is why one can never posit a dualism or a dichotomy, even in a rudimentary form of the good and the bad. ... Good and bad are only the products of an active and temporary selection, which must be renewed' (Deleuze and Guattari 2011: 10).

Such a model of construction may then assist in explaining the degree of resistance *Tape Op* poses to tropes of gear fetishism and masculinity that remain deeply

embedded within other texts of the audio technology domain. Within a rhizomatic form, simple dichotomies are not facilitated, as statements, enunciations and actors cannot be defined by that which they are not. They are multiplicitous and thus cannot be considered in relation to others. Exploring this analogy with respect to *Tape Op*, it is arguable that by functioning in a form that echoes the rhizome, the text offers possibilities for rupturing the re-inscription and perpetuation of the dominant, homogeneous discourse rooted in exclusive tropes. It is important to note however that *Tape Op*'s multiplicitous, horizontal structure makes it equally possible for exclusive discourses to continue due to the *absence* of a rigid hierarchy such as is present in *Sound On Sound*. Whilst I have argued up to this point that rupture is facilitated through multiplicity, it is inevitable that exclusive discourses will continue to thrive in more mediated forms of print media as the previous chapter has demonstrated. The projection of this discourse and its related tropes onto *Tape Op* is therefore possible in the absence of strictly regulated editorial authority. On this last point, it is once again useful to view *Tape Op* through the prism of the rhizome and more closely consider examples of user generated content as well as the views of the editorial team.

4.3 A Rhizomatic Form?

Within *Tape Op*, readers, mediators and interviewees are interconnected as part of a network that facilitates de-stratified communication. As such, the magazine can be considered to work in reaction to the very idea of a 'speciality' text in a limited capacity, in that it is lent a degree of multiplicity with regards to its categorisation and can be better understood as a platform that is malleable, multiplicitous and ultimately, socially constructed (Bijker and Pinch 2012; Oudshoorn and Pinch 2005). Having observed the nature of editorial engagement with the audience and the associated construction of the letters section which functions as a space for open dialogues and discussion, one can see the ways in which the magazine functions in many differing capacities, facilitating the inclinations of both the editorial staff and the general readership. Whilst it is important to recognise the presence and significance of editorial control, an analysis of discourse demonstrates that it is arguably less stringent in the case of *Tape Op*, with readers openly questioning editorial authority. The following exchange taken from issue 22 clearly demonstrates this last point, with a concerned reader critiquing

the lack of what they consider to be relevant content within the text: 'Tape Op is a 'zine in the DIY tradition. I want to know how to do-it-myself. And Tape Op is not telling anymore' (Ruggiero 2001). Editor Larry Crane responds with the following:

'You said "Tape Op is a zine in the DIY tradition". This is a valid perspective, but the only claim I ever made was that it is "The Creative Music Recording Magazine." You can interpret that however you want, whether the music is creative or the recording is. I've always avoided the word 'zine', as it seems limiting - like calling oneself an indie-musician' (Crane 2001a).

It is key to note here that Crane is not dismissive of Ruggiero's statement and instead openly acknowledges its validity. In addition, Crane uses the opportunity to voice his own opinion with regards to the magazine's ideological stance, and whilst we can infer that he favours this position, the magazine facilitates the establishment of a dialogue surrounding the issue, where neither party's contributions are omitted or debased without discussion. It is due in part to this open-ended dynamic however, that exclusive tropes can become integrated and perpetuated as a component of a dominant discourse. Returning to Sterne's account of *Tape Op*, one can observe this very same inscription onto discourse, as he similarly refers to the magazine as 'a hand-stapled 'zine in the punk rock, Do-It-Yourself tradition' (2000) approximately eight months after the publication of the aforementioned letter with Crane's accompanying response. Thus *Tape Op*, in being somewhat multiplicitous, serves to subvert the vertically striated structural composition of audio technology print media demonstrated by comparable texts such as *Sound On Sound*, and in doing so, permits the articulation of a variety of discourses regardless of whether they perpetuate or rupture the dominant tropes of masculinity and gear fetishism. The importance of multiplicity with respect to *Tape Op*'s dialogical practices is underwritten once more by Sterne when discussing the presence of gear fetishism. In the aforementioned review, Sterne demonstrates the extent to which the majority of audio print media discourse is centered around the perpetuation of gear fetishism and points to *Tape Op* as an exception:

'To understand the beauty of *Tape Op*, you've got to take a look at the landscape of recording magazines available today. If you open the pages of *Electronic Musician*, *Recording Magazine*, *EQ Magazine*, *Home Recording*, and *Mix* magazines, you'll find all sorts of discussions of recording techniques and gear. The difference is that these magazines help cultivate the lust for the latest, greatest

recording equipment ... Though some of the writers for these big-league magazines will lament the commodity mania that's running rampant in the industry, mainstream recording magazines promote a lust for new audio equipment simply by covering it so heavily. Each major recording industry meeting is covered in great detail, and each issue highlights announcements of new products at the beginning of the magazine (some these products being announced 6 months or more in advance of their actual release date.) I feel it everytime I open the pages of one of these major magazines, and I'm far beyond a rank amateur at recording' (Sterne 2000).

Sterne's argument is problematic, however, in that by choosing to define *Tape Op* through the actions of other magazines, one's perception of editorial intent is skewed. Sterne implies here that *Tape Op* actively works against the concept of gear fetishism in comparison to other texts. However, it is perhaps more accurate to say that by adopting a de-stratified model of communication and networking, *Tape Op* cannot truly be considered to function *actively* in any capacity, and is better understood as a mediation junction (Schot and Albert de la Bruheze 2005: 234). Adopting the prism of the rhizome once more, *Tape Op* can be considered as multiplicitous in its construction, however this does not immediately undermine the tropes of gear fetishism and masculinity, but instead allows for the *potential* to rupture these discursive features.

It is important to note here that Sterne employs intensely sexualised language to describe what he terms 'commodity mania', notably the term 'lust'. Crucially, this term serves to underwrite the presentation of audio technologies as hypersexualised, malleable and controllable objects that privilege the masculine subject within a simplistic dichotomy of difference and dominance. More so, the implementation of sexualised terminology carries heavy overtones of voyeurism, glamor and pornography that have been identified as central in the 'cultural shift in both the marketing and consumption of [audio] technology' and the sustained presence of 'technoporn' (Bennett 2012c: 124).

On this point, a closer investigation of individual discursive events within *Tape Op* demonstrates that much of the gear-talk and obsession over equipment that Sterne attributes to other print media texts still exists, as Crane himself acknowledges. During an interview (Appendix A), Crane offered the following with regards to the competitive nature and general exclusive tone of audio technology discourse:

'I'm not a competitive person by nature so that kinda stuff just rolls off my back. People that have the time to tell other people that their techniques or gear sucks are obviously not spending enough time making great recordings. I'm convinced that 99% of the folks discussing recording and gear on forums are not actually making music' (Annetts 2013).

Expanding upon Crane's own perceptions, the following exchange (which takes place across two issues) is demonstrative of the manner in which gear fetishism is engaged with by the *Tape Op* community, as well as how the magazine functions as a facilitator in the construction of this dialogue.

'I've been reading an old issue of your magazine (#11) and I wanted to correct a few mistakes. There is an interview with Sascha [van Oertzen] of Knitting Factory. She claims that they have a Trident ADB (that's really and 80B) which was used to make Pink Floyd's Dark Side of the Moon. Come on Larry... Dark Side of the Moon was done at Abbey Road. You won't find any 80Bs there. It was done in 1973, long before there was such a console in existence. I'm not sure if Trident was in biz at all then, but if they were they were building the A and B range series of discrete consoles, not the all-IC based 80 series. As well, Sascha claims that they've added a bunch of tube limiters, but the only one she mentions that actually has a tube in it is the Drawmer, which literally only has one tube amongst the rest of its circuitry. All the others are solid state, not tubes. One definitely needs to check the accuracy of your interviewee's statements. At any rate, I like your magazine and if you need an occasional technical editor, let me know' (Alexander 2000).

'I was reading issue #20 and saw a response from Dan Alexander about the console used on Dark Side of the Moon. I believe it was actually an EMI mark 4 console. Michael Hedges bought it in the '80s at the infamous Abbey Road garage sale' (Bailey 2001).

The condescending tone present in Dan Alexander's letter typifies interactions based on the privileging of technical knowledge and gear fetishisation. Alexander deems a prerequisite conception of knowledge necessary for any and all participation within the audio technology domain (Thompson and McIntyre: 2013; Foucault 1997: 129), and furthermore, undermines Crane's editorial authority by implying a failure in his work responsibilities. The interjection of this critique with his own perceived capabilities as a prospective technical editor underline the privilege assumed in the statement above. Also of note is the demonstrable presence of mansplaining in tandem with this assumed privilege. Although perhaps more

squarely located within the realm of cultural studies, the culture of mansplaining has many parallels with this thesis' concept of exclusivity in discourse, however a more detailed analysis remains beyond the scope of this work. For a more comprehensive discussion of mansplaining, see Rothman (2012) and, crucially, Solnit (2008).

William Bailey's rebuttal, only serves to solidify the presence of the aforementioned exclusive tropes within discourse whilst underscoring *Tape Op*'s position as both a mediator and facilitator in the continuation of this dialogue across multiple publications. Both letters quite clearly demonstrate the extent to which an exclusive discourse continues to be perpetuated and that, contrary to Sterne's assertions, *Tape Op* is equally responsible for the continuation of gear fetishism despite its more inclusive and horizontal (potentially rhizomatic) composition. Returning once again to Sterne's earlier statement, it is perhaps more accurate to suggest that *Tape Op* functions as the object (as defined by Foucault) within a complex and interlinked relationship with other texts: 'accept[ing] statement[s] as [its] own law' in support of the linear narratives and exclusive tropes of a dominant subject such as *Sound On Sound* which 'establishes the definition' by which the object operates (Foucault 1997: 95).

Tape Op's horizontal construction and the modes of engagement it employs serve to emphasise audience accessibility, a feature that is expanded upon by the magazine's subscription and distribution model. As of July 2013, the magazine had around 45,000 subscribers worldwide, with subscriptions available in both physical and digital formats. When asked to comment more specifically on this total, online publisher and web developer for *Tape Op*, Dave Middleton offered the following response:

'We have about 3000 iPad subscribers, but that is included in the 45K total. In the US we have about 35K total, and then 10K in the UK and EU. For logistical reasons we had to stop print delivery to our UK/EU and are trying to figure out a different delivery model. So, until that time 35K total is technically more accurate' (Annetts 2013).

Of perhaps the greatest significance when understanding and contextualising these numbers is that where possible, *Tape Op* subscriptions are offered free of charge by using third class postage and advertising sponsorship to offset expenditures, as well as the use of digital texts. By adopting a free distribution model, alongside a largely horizontal structural composition, *Tape Op* can arguably be considered to facilitate the rupture of material and discursive barriers to

participation within the audio technology community. It should be recognised however, that the magazine's overall dependence on advertising can alternatively be said to reinforce the pre-existing tropes of gear fetishisation and masculinity (Théberge 1997: 111). Notable, in this respect, is *Tape Op*'s transparency with respect to advertising and its links with the magazine's subscription models:

'As you know, Tape Op is a free magazine that's supported by our advertisers. That's how we can afford to print and mail it to you for free. This will include an occasional snail mail piece from some of our advertisers as well as these semi-regular e-zines. We'd like to be a bit more clear about how this works for those of you who are interested in this:

Anytime we rent our list, it is for a "one-time" usage. You are not being added to anyone else's database.

We usually send out our list to a bonded third party mailing house, which further prevents your data from being pirated. We will only rent out our list to our advertisers who are professional audio companies. You won't be getting anything from long distance companies or time shared condos in Cabo San Lucas. Any emailed "spam" will only come from us. We will not give out e-mail addresses to any third party, all email will be forwarded to us and sent to you by us' (Crane 2013a).

Whilst this is useful in demonstrating the ideology behind the magazine's distribution model, for the purposes of this thesis, it is perhaps more pertinent to consider the impact of this model with regards to discourse. Of significance in this respect, is the influence of *Tape Op*'s free distribution model upon the perpetuation of a discourse of consumption, albeit focussed on the (perceived) 'low-end' audio community. By this, I mean to suggest that *Tape Op*'s relative 'inclusivity' can be partially attributed to its tendency to understate the significance of expensive 'pro' audio technology equipment. Early on in the magazine's publication, a precedent was set of producing music within one's financial means, and thus, it could be argued that *Tape Op*'s accessibility as a free resource garnered greater attention from those with less economic power. On this topic, Sterne notes the following:

'*Tape Op* takes cheap cassette-based recorders as seriously as the latest computer-based technology. They have articles on how to find and modify inexpensive microphones, places to find stuff that other people may have thrown out, and how to modify the equipment you already own' (Sterne 2000).

Readership expectations of *Tape Op*'s script (Akrich 1992) can then be considered to mirror the leading industry discourse concerning the normalised fetishisation of technology, albeit refocused to emphasise economic accessibility and the notion of democratisation (Théberge 1997). As Tomaz de Carvalho has noted: 'the notion of democratization is usually articulated within the discourse as a consequence of recording technology's accessibility. This accessibility, in turn, is often considered to be a result of technological progress, as well as of a recent price reduction of recording gadgets and of home computers' popularity' (2012). Readership expectations of accessibility can be witnessed first-hand within the magazine's letters section, as the following contribution from issue 20 demonstrates:

'Let me first state that I'm really, really interested in getting a ribbon mic and I've thought many times that I could do worse things than selling my car for a Coles 4038. So in issue #19 Steve Albini reviews the Royer R- 121 ribbon microphone. He goes through the review saying basically "this mic is great... it's only a tiny bit off the signal depth of the Coles... but feasibly you could even use this in parallel with a Coles and not note any difference." I'm thinking cool, cool - something that sounds as good as a 4038 but maybe they're not as expensive. So I go check these things out and they're \$950, only \$150 cheaper than a Coles. Now granted, \$150 could turn into a couple more 57s or a used MXL 2001 - but seriously, if you were going to shell out around a thousand for a ribbon, why wouldn't you go with the 4038? Albini paints a picture of the thing as if it was as good as a 4038, all the time using the 4038 as the standard, ending with this conclusion that if you bought this mic, you'd basically getting as good a mic as the 4038. I'm thinking "low cost alternative!" but what Albini really means is "just another really expensive ribbon mic that doesn't suck". Fuck that! I already know that if I'm paying \$1000 for a mic, it's gotta be pretty good at something. Review the Beyer M160, a \$469 mic, that is supposed to be pretty good and most of us reading along at home can actually consider purchasing. I have no problem with the "new" *Tape Op*, where glossy ads for \$2500 mic pres pay for my subscription, but does the review section have to be this way too?' (Dickey 2001).

Dickey's letter is demonstrative of how the fetishisation of technology continues to occur within *Tape Op*, but is focussed instead upon technology that falls within the perceived financial means of the magazine's readership. The perception presented of *Tape Op*'s script, as it were, is that of a text in which the financial limitations of the home recordist are catered to. In addition, Dickey directly comments on the free subscription model and its implications for technology

coverage within *Tape Op*, insinuating that the magazine has changed to its detriment. Thus, one can interpret the magazine's chosen subscription model as having the potential to alter readers' perceptions of its motives, specifically with the increased presence of advertising. On this point, Andrew Wernick suggests that the ideological styling of 'non-advertising content comes to be angled and coded in terms of the same economically functional categories as those which substructure the ads themselves' (Wernick in Théberge 1997: 119). Considering this statement in relation to *Tape Op* then, it is arguable that gear fetishisation is inevitably perpetuated due to the presence of advertisements and product reviews in the first instance, undermining the rhizomatic, and also democratic, potential of the magazine (Deleuze and Guattari 2011: 8). The interdependent development of advertising and editorial text as part of a 'double production' industry within musician's print media has similarly been noted by Théberge (see also Chapter Three) who observes that 'equipment reviews have become so lengthy and detailed that they now virtually compete with artist interviews and other feature articles for magazine space' (1997: 110). A second review of *Tape Op* conducted by Sterne demonstrates the extent to which this can be considered accurate through a discussion of the dissonance invoked by *Tape Op*'s subscription model, its perceptively 'low-end' discourse and an emphasis upon consumption. He writes:

'Tape Op now has much more extensive letters and Q & A sections, more gear reviews (including reviews of gear that no budget home recordist could afford), and is willing to move more into the domain of professional recording. But the spirit of the magazine remains the same, right on down to the fact that you can subscribe to it for free. *Tape Op* is the major alternative to big corporate music production magazines, which sometimes read very much like equipment catalogues' (Sterne 2001).

It is of the utmost significance to note here, that Sterne makes a distinction between the 'budget home recordist' and the 'professional' (ibid.), establishing a dichotomy which he further demonstrates to be built upon material wealth and thus perceived class. Conceptually, this is in agreement with what Tomaz de Carvalho has observed as the distinction between 'pro' and 'serious', recordists (2012). The idea that professionalism is inextricably linked with equipment is further evidence of how gear fetishisation has permeated discussions surrounding audio technology. As Théberge suggests, 'magazines promote a whole philosophy of music-making that is based around new technology and consumption' (1997: 111). Interestingly, the

dichotomy Sterne identifies would seem to undermine the democratic potential of *Tape Op* and its apparent script. The inclusion of 'pro' technology product reviews undermines the perceived accessibility of the magazine, which in itself is determined by a free subscription model that ruptures discourses of consumption. In what sense, then, can *Tape Op* be considered 'the major alternative to big corporate music production magazines' (ibid.), if the promotion and cultivation of gear fetishisation renders it discursively similar to the competition?

Returning to Alex Dickey's letter, Cale's response in issue 22 typifies what Heward has termed the 'privileging of knowledge' as previously discussed (2009: 1), and furthermore demonstrates how *Tape Op*'s structure is conducive to dynamic conversations surrounding gear fetishism and thus offers possibilities for re-inscription, but also rupture (Deleuze and Guattari 2011: 10).

'Can you believe this guy? Rarely have I found myself responding to this sort of thing, but this takes the proverbial cake. Mr. Dickey, do you even know WHY you're "really, really interested" in ribbon mics? If this is indeed the case, there are many books that could (potentially) illuminate (shed light on) the aforementioned subject. This is a relatively common practice for many individuals who feel compelled to be informed on their particular subject of interest. Utilizing the criterion "pretty good at something" leads me to believe that you have no defined reason for "needing" said mic, which is not to say that your curiosity couldn't be fulfilled by buying the Royer, but if you're going to go on about the price, everyone knows that \$1000 will buy you complete shit if you so desire. While we're on the subject, who in the fuck told you this was going to be an inexpensive hobby, pal? I feel I can say with confidence that it was not Steve, Larry, or any other engineer with a head on his/her shoulders. Maybe re-evaluating what "low-cost alternative" really means for you and your studio should be your first priority... or buy the Beyer M-160. It fulfills your requirements (it's a ribbon, it's relatively inexpensive, AND is "pretty good at something"). Either way, your attitude can make or break your recording WAY before you fry your beloved 4038 with a good solid sneeze. Lastly, you can get a good deal on a ribbon mic if you keep your eyes open. There are also many other companies that make, or made, as it were, ribbons. RCA ribbons, for example can be found in many places (Ebay, estate sales, junk boxes at a flea market, etc.) for a minimum amount of cash. You should also consider talking to the people that sell these microphones. They will work with you and your money. You'd be amazed how far a little humility and honesty with your situation will get you. But God hope they don't remember you from your irate letter.' (Cale 2001).

First and foremost, the tone of Cale's response is particularly condescending and thus undermines and devalues Dickey's original letter. This is reinforced throughout, but is particularly evident when Cale suggests that Dickey isn't well read on the subject of ribbon microphones, and proceeds to define the language he employs, presumably for Dickey's benefit. By pointing out the perceived deficiencies in Dickey's knowledge base, Cale is able to establish a dominant and hierarchically superior position, and thus a platform from which he can oppress those beneath him (Foucault 2001: 173; Foucault 1997: 110; Lyotard 1997: 8-9). The parallels with the previously addressed concept of mansplaining are also worthy of consideration here (Solnit 2008). The aforementioned oppression is reinforced if one observes Dickey's subsequent, and rather submissive, response in which he states: 'just wanted to apologize for my asshole letter. We're getting a pretty great mag for free, Beyer 160 reviews or not' (Dickey 2001). *Tape Op* can therefore be considered as a platform for discussion and debate, in that it acts as a facilitator or mediation junction for dialogue rather than contributing directly (Schot and Albert de la Bruheze 2005: 234). Larry Crane similarly recognises this, and presents the magazine as such in an open letter:

'Recently there have been a couple of letters complaining or worried about the direction *Tape Op* is, or could be, going in. Others have written in to correct us on technical topics. The reason I bring this up is because it sheds some light on who and what *Tape Op* the magazine is. It is a thirst for knowledge. I started it in the first place because I felt there were no forums to read about how people made the kind of records I wanted to make. As the editor I'm still learning - about gear, about techniques, about music, about recording history, about editing even... I didn't go to school to learn recording or to learn to edit a magazine - I taught myself by watching, reading and listening. And I still do. When I get an interview sent to me for possible publication I'm excited, because I will usually learn something new. And that's what we're about - learning and the desire to learn. If we don't catch a technical error or use the wrong model number when referring to a piece of gear, write in and tell us. I'm willing to learn and admit I don't know everything - and I'm also willing to pass this knowledge on to others. If it seems *Tape Op* isn't covering topics you want to read about then tell us. You may also be surprised at what we already have waiting in the wings for future issues. One thing I do ask is that you, my dear reader, never assume that anything about *Tape Op* is set in stone or that we have specific agendas. I have heard that we are a home recording mag, a DIY 'zine, a bible for budding engineers, an analog tape only mag - I don't think those are true to our vision or that there's one simple way to describe what it is, and that's good in my book. We may set a rough

course but *Tape Op* will continue to travel some interesting paths!' (Crane 2001a).

Crane openly invites readers to contribute to the community discourse, suggesting they write in to correct technical errors and propose topics for coverage, further solidifying the magazine as a facilitator. From this, we can discern that Crane views the magazine as malleable and changeable. *Tape Op* can thus be considered to contain a script that is in constant negotiation and development (Akrich 1992). The magazine therefore functions in contrast to the 'closure mechanisms' discussed by Oudshoorn and Pinch (2005: 3) and can be considered to retain 'interpretive flexibility' as outlined in Chapter Two. In theory at least then, if not always in practice due to the persistence of subject/object relations, *Tape Op* resembles a more rhizomatic form and thus allows for the *potential* rupture of the dominant discourse (Deleuze and Guattari 2011: 8). The following exchange taken from issue 54 demonstrates how readers interact with the editors in this capacity and in doing so, cumulatively co-construct the magazine script:

'I always considered *Tape Op* to be the refuge of the DIY, the financially compromised and certainly the non-elitist. ... As a devotee, I couldn't help but say, "Ouch," therefore, when I read John and Larry's defensive replies regarding Stephen Murray's letter in issue #53. Are we at the point where *Tape Op* regards inexpensive gear as only worthy of passing consideration? John: "I feel like a short review is all that's needed sometimes, especially on a less than \$200 microphone made in China." Larry: "Subjecting a \$200 mic to the same scrutiny one would give a \$5000 mic is probably not worth many people's time." You both just left me way behind. And what hurts worse: Larry: "I feel that at that price they can make their own decision!" Thanks a lot guys. I guess you are catering to the \$5000 microphone crowd now. That cut really hurt. I don't understand those words at all. I think sometimes that you editors need editors' (James 2006).

"Are we at the point where *Tape Op* regards inexpensive gear as only worthy of passing consideration?" No. I personally gave the Audix i5 (\$99) a big thumbs up review some time back and bought over ten of them. (I reviewed the used Sony ECM-50 - less than \$50 - and the Heil PR-20 - less than \$200 - in recent issues. ... "I think sometimes that you editors need editors." Seems to be a common theme this issue. At least we're human and try to express ourselves, and maybe sometimes we don't do it clearly enough or in a manner you dig - but at least *Tape Op* comes across as real and human. There are plenty of other places one can go for non-opinions and re-written press releases ... I hope people walk away from reading

Tape Op with something learned or an idea to try. Better that than watching an editor trying to defend his ethics over a review of a \$200 microphone!' (Crane 2006).

The nature of this interaction itself is rather interrogative, with James denouncing the behaviour of the editorial staff and systematically asserting his own authority through rhetorical devices. Crane's response, then, arguably comes across as rather defensive, as he is compelled to justify his previous statements. The interplay between these actors is demonstrative of the push/pull relationship similarly explored by Heward (2009) in relation to the audiophile community, as well as the cumulative co-construction of script (Oudshoorn and Pinch 2005: 3).

4.4 Masculinity

Further evidence of exclusion within *Tape Op* can be observed through an examination of the aforementioned trope of masculinity. Having witnessed how the magazine's de-stratified structure impacts the perpetuation of gear fetishism, it is equally significant to observe its effect upon performances of masculinity within the community letters section. Following the work of Foucault with respect to power, knowledge and exclusivity (2001: 173; 1997: 110), I argue that masculinity functions as a means of asserting dominance, largely through the articulation of gear fetishism, the presence of 'technoporn' (Bennett 2012c: 124) and gendered 'domain acquisition' and thus attempts to inhibit masculine-deviant gender performers' rights to speech and rights to knowledge within the *Tape Op* archive (Thompson and McIntyre: 2013). In Chapter Three, I explored the social construction of gender using the work of Butler (1990) and the social constructivist methodology of genderscript (van Oost 2005: 195). The following work acts as an extension of this by examining first-hand, the genderscript of *Tape Op* as a specific community within the audio technology domain.

When asked during an interview (Appendix A) how he thought *Tape Op* had contributed to the dialogue concerning gender (either intentionally or unintentionally) within the audio technology community, editor Larry Crane explained:

'We wanted to be inclusive of people that felt recording was a middle-aged boys' club that they had no place in. I try and find articles that buck the overwhelming "white male" trend when I can. But in the end it's all about the art being made...' (Annetts 2013).

From this we can discern that Crane purposefully seeks out articles that engage with a broader demographic, however, his reference to the (alleged) scarcity of these sources ultimately points to the relatively poor assimilation of non-masculine recordists into the audio technology community and thus speaks of a considerable lack of represented diversity. When asked specifically about how he has seen the discourse surrounding gender develop or change within the audio technology community (Appendix A), Crane offered the following response:

'I'm not sure it's changed. I wish. We've actually refused certain advertising that we felt was objectifying women, but at the time we made no stir about it and moved on. At least if you say "No" once then they might not send another ad like that your way. We've laid pretty low on that, as there didn't seem to be a need to humiliate the advertisers or publicity firms involved. When you go to trade shows and manufacturers tell you where the hot "booth Betties" are then you know it's still all fucked. I don't discriminate in any way in my life or in the studio. Every good studio rat knows that musicians and recordists come in all sizes, genders and colors, so there's no point in thinking otherwise. I've trained a number of women to record. My studio manager is a woman and she's also an amazing engineer and producer' (Annetts 2013).

What is perhaps most significant when considering this statement, is Crane's suggestion that there have been no significant changes within the audio domain discourse with respect to gender and its implications for participation. Th  berge has similarly identified the perpetuation of this trope within the music press, stating: 'gender stereotyping continues to be an essential characteristic of virtually all music industry markets, as contemporary magazine formats and ad campaigns attest' (Th  berge 1997: 97). It is important to remember here, as previously discussed in Chapter Three, that *Tape Op* is reliant upon advertising and sponsors to support the magazine financially. It can therefore be inferred that Crane's apparent reluctance to 'humiliate' advertisers is partially rooted in his sense of self-preservation (Annetts 2013). Despite this however, issue 18 of *Tape Op* draws specific attention to the exploitation of women within marketing and advertising in an article titled *Gender*. Crane states:

'One thing that has really been pissing me off lately though has been some of the ads in *other* recording magazines. I know it's not the editors [sic] fault, and advertising sales people sometimes never even see the ads they pull in until they are run, so I can't blame the staff of

these fine mags at all. But these ads offend the hell out of me ... These ads are the worst offenders, but other companies use women as sex-objects to get the readers [sic] attention, like a certain ad with a women getting out of the shower and the word “strip” above her. What the hell does this have to do with audio? I understand the need to sell product, but lets [sic] have the product sell it, not pictures of scantily-clad women or demeaning text. Don't these companies realize that women buy their products too?’ (Crane 2007: 143).

By establishing discourses that objectify women, audio technology magazines perpetuate the idea of technology as a hegemonic masculine discipline, a concept that I have demonstrated draws on antiquated nineteenth century notions of public and private gender roles and inscribes them onto/into technologies (Baym 2014; Wolfe 2012; Heward 2009; Douglas 2004; Campbell 2003). It should be recognised however, that the actions of both Crane and *Tape Op* magazine are significant in assembling and promoting a degree of resistance or rupture to such exclusive discourses, notably through the magazine’s letters section. In issue 20, Marilyn Seits responds to Crane’s article:

‘Thanks for your recent article on “Gender”. I am a woman who plays jazz, writes music for my own record label and does most of the engineering in the recording studio that I designed and built. Face to face and on the phone gender discrimination seems to be diminishing because it's interactive and I can talk tech-talk and establish credibility right away. But in trade magazines it is rampant. I sometimes fume as I leaf through magazines and technical newsletters filled with “guys only” talk and ridiculous ads, such as the Symetrix “soft squeeze” compressor ad a few years back featuring not a compressor but a woman's breasts. I still refuse to buy products from this manufacturer. So thanks to Tape Op for your article and photos of women in the audio industry who are doing more than pouring the coffee’ (Seits 2000).

Whilst Seits suggests that gender discrimination appears to be diminishing, it is important to deconstruct why this is thought to be the case. Seits’ suggestion that ‘tech-talk’ allows her to ‘establish credibility’ (ibid.) evidences that in order to engage in audio technology discourse, one must enunciate following the limits outlined by the function itself (Foucault 1997), acquire the domain (Thomson and McIntyre 2013), and perform as required by the relevant archive and genderscript so as to become perceptible, visible, and thus able to act (Foucault 1997: 129). Considering the physical and ideological distancing of women from the audio technology industry (Keightley 1996), the necessity of conforming to this hegemonic discourse in order

to assume agency is reinforced (see Chapter Three). Seits' observations not only underline the extent to which exclusivity has permeated the domain, but also illuminate the mediated practices of marginalised recordists that are made necessary for participation. To clarify, Seits arguably perpetuates (and thus normalises) the implicit, dichotomous hierarchy of knowledge in order to assume or retain her status as a visible or perceptible agent, as can be observed first-hand at the start of her letter: 'I am a woman who plays jazz, writes music for my own record label and does most of the engineering in the recording studio that I designed and built' (2000). Here, it is only possible for Seits to define her abilities within the terms outlined and expected of her by the dominant discourse and the archive itself. The presence of details that stress technical competence (the masculine) are necessarily wielded to establish credibility and visibility within a masculine domain. One can therefore make the argument that Seits *must* normalise the exclusive features of this discourse through her actions of participation (and thus conformity) rather than opposition (resulting in exclusion or invisibility) in order to participate. It is only by enunciating as required by the audio technology domain that one is able to become visible and thus engage in any dialogue or discussion in the first instance, thus rendering rupture through non-conformity largely ineffective.

Both Théberge (1997: 97) and Crane (Annetts 2013) critically point to masculinity within advertising and trade shows as key contributory elements to exclusion (see also Chapter Three with respect to this interdependent 'double production' industry). As Bennett has noted, audio trade shows function largely to demonstrate the latest equipment (see 'technoporn' (2012c: 124)), cultivating gear fetishisation and thus a privilege of technical understanding (Heward 2009). The presence of so-called booth Betties (Annetts 2013) at these events serves to emphasise the extent to which women are marginalised through objectification and thus restricted from participating on an equal footing with masculine performances in the discussion of audio technology. Discussing the persistent objectification of women at a trade event, Crane observes:

'At a recent NAMM show one of the companies being represented there had a booth with a hot tub full of porn stars that attendees could climb in with, What can I say? ... I don't ever want anyone, female or male, to get a feeling that the "recording club" is closed off to them before they even get in the door. It will be a long battle' (Crane 2007: 143).

The marginalisation and objectification of women at major industry events perpetuates a discourse that positions women as subordinates within a problematic dichotomy (Foucault 1997: 110). In this way, advertising and promotion can be considered to feed into the community discourse on gender, and so possess a great deal of authority in shaping the nature and extent of women's, or indeed any masculine-deviant form of participation. The following letter, taken from issue 22 of *Tape Op*, similarly cites trade events as a site of discrimination against women within the industry:

'Usually, I'm fine with always being the only girl working with a bunch of guys on audio projects, maybe I've just been thinking about it more, but lately I think it's ridiculous. I'm the analog studio intern at The Evergreen State College, I'm learning electronics and building a tube pre-amp, I'm recording and doing live sound for bands, blah, blah, etc. So, I'm building a bass cabinet and I called Carvin to get some speaker specs and the guy called me "little lady", granted I sound like a little kid on the phone but I knew what I was talking about. I went to help teach an audio class to use the 8-track studios and there were only two women out of eighteen. Then I went to talk to another audio class, where out of nineteen kids there's only one girl, who wasn't even there. And if you really want me to vent I'll tell you about the guy at one of those media shows who said, when I was looking at some patch cables, "Girl's like the colored ones." So you know, yes, those things make me mad as instances, but, as a whole I'm more annoyed with the women who just don't seem to be interested in trying to enter this field. How come? It's so much fun and there are so many different options to focus on. I don't want to be treated as some oddity, special exception or, that I don't know my shit. Don't ask for special help and don't accept it. There is no reason why this is such a male dominated area. Yes, there are a lot of boys who have pushy big heads, but things can change - be strong and get your hands on those faders. I also wanted to say that this 'zine has some really amazing articles and hints and does a good job at bringing girls into the picture. Thanks' (Martin 2001).

Martin's letter exemplifies several of the topics previously discussed, in particular the perceived importance of establishing credibility when perceived as a masculine-deviant gender identity, as well as the institutionalised gender discrimination at industry trade events. Martin's letter attributes participatory imbalance with regards to the audio industry to 'boys who have pushy big heads' (ibid.). Whilst this echoes the privileging of technical knowledge noted by Heward (2009) and indeed the presence of mansplaining as noted by Rothman (2012) and Solnit (2008), it is important to recognise that the industry is difficult to penetrate as

a result of the pervasive nature of a discriminatory discourse that typifies almost all social interaction, in this instance, one that favours a masculine gender performance.

Whilst the letters discussed thus far demonstrate that there exists a dialogue surrounding the trope of gender, and thus dominant masculinity, within *Tape Op* magazine, it is still very much an issue that goes unchallenged within the wider domain. Within *Tape Op* itself, women only make up four percent of the overall readership (Appendix B), and whilst Crane may seek out interviews that deal directly with issues of discrimination (for example, issue 76 contains an interview with Terri Winston of Women's Audio Mission who are discussed in Chapter Six), this in itself is problematic as women are often sought out to discuss discrimination and exclusive as opposed to the craft of audio engineering itself. More than this, the somewhat horizontal structure of the magazine ensures that it largely functions as a platform for the majority and their opinions, making it an ideal avenue for the perpetuation of the hegemonic discourse whilst offering the *potential* for rupture. Looking once again at issue 22, the following letter from Bruce Barnes, published alongside Tammy Martin's, demonstrates how *Tape Op* functions as an open platform in this capacity:

'I enjoy your off beat publication very much, as I tend to enjoy most who cover the topic of pro audio! I'd like to add my comments regarding the gender issue if I may. First off, its true we still see an occasional ad using women to sell audio products. But hey, sex sells, always has and always will, it's the American way! Some women find this type of advertising offensive. Being male myself, I can relate to this approach of advertising, but its "never" influenced me one way or the other! True, it does get my attention and that's about it! They say men have a sexual thought every 15 seconds! So you can imagine this group of horny men setting around some ad agency trying to come up with the winning ad to please their client, who in turn is another group of horny men. Let's face it people, God made women to give men "Fever" and they DO!! It's all part of being human! Even though the percentage of women in pro audio is low, it does not however prevent any woman who is good at their craft (and most of them are) from being accepted or being successful in pro audio! An outstanding example would be Leslie Ann Jones! On a recent trip to LA, I saw more women behind the big boards than one would guess otherwise. I rest my case!' (Barnes 2001).

Barnes' letter is fundamentally dismissive. By attempting to diminish perceptions of exclusive masculinity, Barnes makes broad and unfounded

assertions as to the severity and widespread nature of gendered participation to suit his own preferences. His letter is particularly dismissive of the normalised sexualisation of women within the audio technology industry. Barnes is similarly incapable of empathising with those affected by the discrimination he normalises, preferring instead to refocus the discussion towards his own predisposition: 'God made women to give men "Fever" and they DO!!' (ibid.). Ironically then, Barnes is unable to comprehend how the gender discrimination he espouses has the potential to deter women from participating. Platforms such as *Tape Op* then, whilst effective in acting as mediators, more often than not serve to perpetuate the hegemonic discourse, even whilst offering possibilities to critique it.

The potential reinscription of this problematic discourse can be witnessed firsthand by refocusing one's attention to Tammy Martin's earlier statement with respect to gender imbalance within the audio community: 'Usually, I'm fine with always being the only girl working with a bunch of guys on audio projects, maybe I've just been thinking about it more, but lately I think it's ridiculous' (2001). The uncertainty presented here is suggestive of a normalised conception of gendered participation as a component of discourse, that often passes unchallenged. It should be noted here that the very possibility of challenging discourse is heavily reliant upon the navigation and satisfaction of a strict set of criteria. As I have previously suggested, a failure to follow the audio domain's enunciative function results in effective imperceptibility, thus decreasing the potential for rupture. The assertion of one's legitimacy as a participant is, I argue, wholly dependent upon the acquisition and articulation of a hegemonic masculine discourse concerned with technical knowledge and gear fetishism. Therefore, whilst Martin points to normalised practices and discourses of gendered labour division, her ability to enunciate, and thus bring into question their perpetuation, is dependent upon the very same tropes that Barnes' wields as a means of objectification. Martin is thus precluded from participating as a 'subject' (Foucault 1997: 95), and thus her ability to reinscribe or establish alternative discourses is restricted. I contend, therefore, that alternative means of inscription must be sought out by those considered external to the hegemonic, masculine majority. Possibilities in line with this argument are presented and discussed in Chapter Six alongside a more detailed analysis of masculinity as a social construct and *Women's Audio Mission*.

Whilst spaces such as *Tape Op* are attempting to draw attention to issues of gender imbalance, the horizontal structural composition of the magazine ensures

that its content frequently reflects the discourse of this favoured majority. How, then, do more rigidly structured and editorially regulated print media texts engage and invoke the issues of gender discrimination and gear fetishisation? The following chapter will examine the industry publication *Sound On Sound* in order to form a comparative discourse analysis alongside *Tape Op* and further illuminate the nature of communicative practices from inside this community.

4.5 Conclusion

This chapter has investigated the discourse of *Tape Op* magazine using a series of research methodologies from SCOTS including script (Akrich 1992: 208) and genderscript (van Oost 2005: 194-196) as outlined in previous chapters. In addition, I have aligned my analysis with a series of texts concerned with the relative agency and perceptibility of domain participants, notably Foucault (1997) as well as Deleuze and Guattari (2011) as a means of interpreting the structural composition of the text itself, as well as the modes of engagement it facilitates. The democratic potential of audio technologies was considered in coincidence with the texts outlined above. Drawing on the concept of the rhizome (Deleuze and Guattari 2011: 7-8), I have suggested that *Tape Op* functions in a relatively horizontal capacity that enables the connection of various 'strata' within the audio technology domain, that are otherwise discrete components of a hierarchical and dichotomous structure. Thus, *Tape Op* arguably facilitates the potential rupture of exclusive discursive tropes, notably, a hegemonic masculine performance and the fetishisation of technology. On this point, I suggested that the community letters section allows for domain participants to enact the 'antiprogram' (Akrich and Latour 1992: 261) by reinscribing the capacities in which *Tape Op* can function. A detailed analysis of individual reader and editor contributions was conducted in support of this, and supplemented by relevant material gained from personal exchanges with the editor, Larry Crane and web developer, Dave Middleton. In responding to this project's research questions (see Chapter One), I demonstrated how *Tape Op*'s intrinsic structural composition as a rhizomatic-like text, embodies the *potential* for both the rupture or perpetuation of democratising technologies and discourses. Individual statements were drawn upon from a wealth of contributors in order to provide first-hand evidence of this process. The integration of these primary

research sources with postmodern concepts of the rhizome and Foucauldian discourse analysis, serve as an overall contribution to knowledge within this thesis.

Chapter Five: Comparative Discourse Analysis of Sound On Sound

Sound On Sound is a monthly audio technology magazine published by SOS publications in Cambridge, England (White 2005). Founded in 1985 by Paul and Ian Gilby, it proclaims itself as ‘the “bible” of the hi-tech music recording industry’ (Sound On Sound 2015), and serves as an illuminating case study when analysing exclusive tropes within audio technology print media discourse. This chapter forms a comparative discourse study alongside the account of *Tape Op* presented in Chapter Four, and extends the underlying theoretical frameworks employed so far to further investigate the tropes of masculinity and gear fetishism, and notably their mutual interdependence within a phallogocentric system of signification and enunciation (Derrida 2001: 22; Foucault 1997: 88; Butler 1990: 18) as an original contribution to knowledge. On this point, I highlight the problems in challenging the enunciative system of patriarchy inherent to the audio technology domain by drawing on the work of Michel Foucault with respect to discourse, as well as authors within the field itself (Baym 2014; Thompson and McIntyre 2013; Wolfe 2012; Rodgers 2010a). Using concrete examples from *Sound On Sound*, I show how both the structure and discourse inherent to this magazine serve to maintain the marginalisation of individuals based on a privileged conception of knowledge. As an extension of this, I draw upon texts concerned with the concept of phallogocentrism in order to illuminate my own account and further engage with material concerned with the interdependence of technical knowledge and masculinity (Rogers 2012: 476; Horning 2004a: 726; Théberge 1997: 127).

Using Foucauldian discourse analysis, I explore the complex interactions between specific actors within the production and reception of knowledge within *Sound On Sound*, as well as the underlying hierarchical structure of the magazine that, I argue, serves to perpetuate a didactic model of communication. In this respect, the chapter presents a conception of exclusive participation within audio technology print media informed by the concepts of user configuration (Woolgar 1991), script (Akrich 1992: 208), genderscript (van Oost 2005: 194-196) and the antiprogram (Akrich and Latour 1992: 261) as a means of examining the potential agency of actors and the possibilities of rupturing the dominant discourse. As well as social constructivist methodologies, the research presented here also draws

upon the conception of knowledge and power as defined by Foucault (1997: 181-182) as a means of assessing the tropes of masculinity and gear fetishism.

5.1 Sound On Sound Overview

SOS Publications currently produce three separate editions of *Sound On Sound*, with each targeting a specific region within the magazine's global audience. These issues are targeted towards the following areas: the UK, Europe and the rest of the world; the United States and the Americas; and since 2012, Brazil. For the purposes of this chapter, the UK edition was selected for analysis, primarily because it is the longest running edition of the magazine globally (1985-present) a point that in turn enabled a contemporaneous comparison with *Tape Op* magazine. The analysis conducted here explores primary sources taken from UK issues of *Sound On Sound* in order to examine the nature of interaction between the publication and its readership, as well as exploring the aforementioned relationships that exist between audio technology, its creators and its users with respect to social construction of technology studies (Bijker and Pinch 2012; Oudshoorn and Pinch 2005). Particular attention is paid to the structural composition of the magazine in this respect. To elaborate, Chapter Four presents *Tape Op* as being rather more horizontal and potentially rhizomatic (Deleuze and Guattari 2011: 7-8) in construction due to a tendency to favour first-hand interviews and reader-generated content. *Sound On Sound*, in comparison, is much more vertical or 'striated' to borrow from Brian Massumi (Deleuze and Guattari 2011: xiii), a quality that manifests itself both within the discourse presented, but also as a component of the magazine's physical layout and its graphic design. The segmented and more rigidly defined structure of the magazine, made apparent through the use of monthly recurring feature articles with clearly defined topic headings, shapes and moulds the associated discourse accordingly. With this in mind, the structural composition of *Sound On Sound* can be said to function in a capacity that enables the formation of more narrow and exclusive discourses that are less free-form and limited in scope than those found in *Tape Op*. This chapter demonstrates that through its reliance on a more hierarchically rigid structure (implicit in its discourse and visual design), *Sound On Sound* functions more didactically than the (by comparison) non-instructive and exploratory *Tape Op*. The respective differences between these magazines therefore serve as a useful springboard for analysing the perpetuation of

exclusive tropes within the wider audio technology domain, as the principles by which these magazines operate are often in direct opposition.

The material for this chapter was drawn from original research comprising a first-hand exchange with *Sound On Sound* editor in chief Paul White (Appendix C) as well as detailed discursive analysis of archive material from the magazine spanning the period of November 1985 to November 2013. Whilst my research surveyed the entire *Sound On Sound* back catalogue (and is thus comprehensive), I have paid greater attention to material produced during, and immediately after, January 1999. This was done for two key reasons. First, it was necessary to ensure that comparisons made between *Tape Op* and *Sound On Sound* were contemporaneous. Second, this period of the publications history produced an abundance of relevant opinion pieces concerned with the 'democratic' potential of emerging digital technologies, particularly digital audio workstations (DAW's) and the consequences of their widespread adoption led by a reduction in price point and the emergence of reliable consumer computers as discussed in chapters two and three (Tomaz de Carvalho 2012; Théberge 1997). As with my analysis of *Tape Op* magazine, online content was not considered for analysis due to the historical significance of print media in presenting audio technology as having the potential to democratise audio production processes. Despite this focus on the period 1999-2013, however, it is important to stress that a thorough understanding of the printed music technology discourse can only be achieved by observing its evolution and development over the course of the available publication's print history, and thus the back catalogue of the magazine was surveyed in its entirety. With this in mind then, whilst the following discourse analysis is rooted in the historical evolution of *Sound On Sound* in general, specific examples and citations are often taken from material produced within the last sixteen years.

For the purposes of this project, members of staff from *Sound On Sound* were contacted a number of times in order to request interviews. On all but one occasion, these advances were not met with a response. It should be noted here, that these initial requests were fielded through *Sound On Sound*'s website, whereby individual contact addresses are protected and requests are made through a well-regulated series of forms, in order target relevant departments or key authors from SOS Publications. As a result, user-side records of these requests are, unfortunately, unavailable. In hindsight, this process is telling as to the structural composition of the magazine and the means through which discourse is facilitated.

On this point, I am referring in particular to *Sound On Sound's* discursive tendency towards didactic and mediated forms of communication with domain participants, as this chapter demonstrates.

Within this initial contact phase (June-November 2013), interview requests were made in order to discuss the continued development of the audio press in general terms. Unfortunately, in this six month period, I received no replies. As a consequence, the scope of my research project was detailed in a further email to Editor in Chief, Paul White, who was eventually kind enough to answer short queries via email, before deferring to editorial director, Dave Lockwood (Appendix C). Future messages directed to Lockwood were similarly not responded to.

Boyce and Neal (2006: 3) have acknowledged that in-depth interviews are inevitably prone to bias. It is therefore essential that researchers utilise open questions, probes and relatively neutral topics in order to prevent 'leading' participants towards their preferred responses. Every effort was therefore made to ensure my initial exchange with Paul White displayed a perceptible neutrality, with the topic of my thesis being clearly foregrounded, alongside the themes being discussed; notably gender discrimination and gear fetishism (Appendix C). As such, the initial exchange exhibits a low degree of bias, as transparency was prioritised. Following White's deferral to Lockwood, the questions posed were markedly more pointed and arguably 'leading' in nature in order to secure, at best, a comment with respect to the discursive features this thesis highlights. Care was given, however, to ensure that terminology (such as gear fetishism) was clarified, and thus the potential for interviewer-induced bias for kept low (Boyce and Neal 2006: 4). The exchange presented in Appendix C should therefore be considered with this caveat in mind. Whilst the lack of corroborative interview material with other SOS Publications staff is troublesome, the critique presented of *Sound On Sound*, I contend, demanded a genuine response from the publication, regardless of its brevity. Should future researchers wish to revisit the topics and themes considered within this thesis, it is essential that guidelines similar to those of Boyne and Neal (2006) be considered in order navigate bias and account for leading or closed questions. It would also be pertinent to conduct a number of interviews (where possible) in order to validate, or comparatively contrast, the responses given.

While my earlier account of *Tape Op* investigated individual instances of gear fetishism and masculinity in the construction of knowledge as evidenced through an analysis of letters and contributions to the community discourse, the

following discussion of *Sound On Sound* is more focused on its hierarchical structural composition which fails to grant agency, and to a certain extent visibility, to participants, and thus treats them as interchangeable objects within a 'masculinist signifying economy' (Butler 1990: 18). Within this economy, I argue that all participants, regardless of gender, class and community standing, are denied agency and are objectified following the work of Nussbaum (1995). In order to interpret this process, I explore the concept of phallogocentrism (as defined in Chapter One), by drawing on the work of Derrida (2001), Foucault (2001; 1997), Haraway (1991), Butler (1990) and Irigaray (1985). I argue that at the root of *Sound On Sound*'s striated and hierarchical form is its adherence to a phallogocentric system of enunciation and signification that necessitates the privilege of the masculine subject over all other participants.

The corpus of *Sound On Sound* can be considered as forming an archive as defined by Foucault in the *Archaeology of Knowledge*, that is, not only a documentation of statements, but also a system of enunciability (1997: 129). By analysing the systems of knowledge (or epistemes) that underpin the archive of *Sound On Sound*, one is able to analyse the role of phallogocentrism (the language of patriarchy) in scripting the archive (Akrich 1992: 208) and thus in the co-construction of community participants (Oudshoorn and Pinch 2005). More than this, by understanding the language of the archive, one is able to question the potential agency of these subjects. In particular, whether or not community participants are able to enact the 'antiprogram' as defined by Akrich and Latour (1992: 261) and so rupture the hegemonic discourse as determined by the enunciative function (Foucault 1997: 88). Without rupture, the exclusive tropes of masculinity and gear fetishism will be perpetuated and thus continue to advantage (and exclude) specific demographics. In pairing the work of Foucault with a concept of phallogocentrism, it becomes possible to determine the array of symbols used to assemble and perform the enunciative function, and therefore bring into question possibilities for resistance. In order to better understand this final point, it is useful to present concrete examples from here on, and furthermore, draw upon relevant academic literature concerned with audio domain exclusivity in order to contextualise these first hand sources.

5.2 Gear Fetishism

This section of the chapter demonstrates the variety of ways in which *Sound On Sound* lays stress on the consumption and ownership of a technical product or 'gear' (Théberge 1997: 108; Marx 1887 [2015]: 52). Central to this overarching theme is the consumption of technology in the construction of knowledge as defined by Foucault (1997: 181-182) and furthermore, the importance of knowledge in perpetuating a didactic model of information transfer that succeeds in maintaining dichotomous, striated spaces (Massumi in Deleuze and Guattari 2011: xiii; Derrida 2001: 22). Particular attention is therefore paid to the power relationships that typify editor and audience engagement, as within these interactions, technology is often used as a means of asserting dominance over community participants through their objectification (Nussbaum 1995: 257). By this, I mean to suggest that the *Sound On Sound* editors determine the prerequisite knowledge necessary to participate in community interaction and thus effectively control the magazine's script (Akrich 1992: 208) and thus possibilities for rupture or resistance. It is important to note that the aforementioned objectification is not necessarily purposeful, but is instead linked to the intrinsic structural composition of the text itself. The consequences of more strictly regimented forms of control are explored in the following analysis, and are determined as stemming largely from an overwhelming emphasis on technological artifacts. The concept of gear fetishism is therefore central, as technology is often discussed in limited or rather superficial contexts as a means of establishing positions of power as Théberge has acknowledged:

'Technology is fundamentally linked with notions of progress and change, and, for the manufacturers of electronic musical instruments, it is important that musicians adopt these values, especially the need for renewed consumption of goods ... It is precisely in the musicians' magazines, ... that these issues are most clearly raised and, to a certain extent, resolved' (Théberge 1997: 111).

He continues:

'It should be perhaps noted here, if only in passing, that this emphasis on new musical products ... is apparently a widespread side-effect of the increased speed of technological innovation and high industry marketing strategies ... in the high-tech magazines, both the advertisements and the feature articles emphasize various technical discourses, especially those concerned with power and control' (Théberge 1997: 118-119).

The emphasis placed on power/control here has also been recognised by Will Straw who argues that the 'homosocial bonds of rock music culture' - in various forms - are organised around the circulation of knowledge as a means of enacting power (1997: 7). Whilst both Théberge and Straw focus upon the specific domains of electronic instruments and record collecting respectively, it is interesting to note their observations concerning the presence of an exclusive, phallogocentric, masculine discourse surrounding the possession and acquisition of technology within the context of the music industry overall.

In discussing audio recording technologies, Paula Wolfe has stated that 'historically, music production knowledge and skill have been accessed and developed in the professional recording studio, a site gendered as a male space of creativity' (2012). This echoes the work of Kier Keightley (1996) concerning the masculine appropriation of domestic space and the establishment of both ideological and physical distancing through gendered technology previously examined in Chapter Three. As Théberge has acknowledged, magazines similarly function as spaces for the dissemination and articulation of knowledge through the interdependence of gear fetishism and a masculine discourse, and thus should also be examined in order to assess their implications for participation. In discussing the exclusion of women within the field of audio technology, Paula Wolfe cites Alison Wenham, Chair of The Association of Independent Music (AIM) who states: 'We remain one of the most white-male-dominated industries in the world. I do not believe the men in the industry have ever deliberately exercised prejudice, it is more a deeply ingrained set of customs and habits that has resulted in this imbalance' (Wenham, AIM AGM, London, July 2009 in Wolfe 2012). The observation here that there exists an underlying set of exclusive and prejudicial customs is particularly relevant within the context of print media and *Sound On Sound*, as phallogocentrism is, I argue, the central system that facilitates exclusion. The elevated sense of privilege (Heward 2009: 1) associated with acquiring the domain (Thomson and McIntyre 2013) and mastering the enunciative function (Foucault 1997: 88) of *Sound On Sound* is stressed through the possession and discussion of audio technologies, (gear fetishism) and thus succeeds in perpetuating a dichotomy rooted in knowledge disparity and objectification (Nussbaum 1995: 257).

The heavy promotion and discussion of audio technology within *Sound On Sound* can then be considered to have far greater implications for participation than might otherwise initially be apparent. *Sound On Sound* places an overwhelming

emphasis on recording and reproduction equipment, with news and reviews of recent and upcoming products featuring prominently in all issues of the magazine (see also Bennett (2012c: 124-125) for a discussion of the term 'technoporn'). Potential advertisers are provided with a media information pack that similarly stresses this focus:

'An impressive 97% of the readership state that Sound On Sound reviews influence their purchasing decisions, with a 90% approval rating for the content of those reviews. Product reviews also top the list of reasons for buying the magazine (40%) with the workshops/techniques and feature articles splitting the remainder of the vote' (Sound On Sound 2013a).

From these statistics we can discern that *Sound On Sound*, with the majority of its pages being dedicated to product reviews, is limited in the extent to which it can engage in discourses concerning the application of technology, instead preferring to focus on its fundamental attributes and construction as a consequence of the restrictions implicit to the chosen review format. *Sound On Sound* then, can be considered to act as a provider of relevant facts, figures, and statistical details, often in the absence of any wider commentaries on audio technology that extend beyond practical observations of the products in question. In addition, this a role in which the reader expects *Sound On Sound* to function, and thus serves to perpetuate an established reader-writer co-expectancy. What is perhaps most illuminating when considering these statistics, is their implications for author and reader power relationships; with forty percent of readers citing reviews as their primary reason for purchasing the magazine, and ninety percent agreeing with the content of those reviews, *Sound On Sound* can be considered to function in a largely didactic capacity with respect to its readers, in particular when concerned with influencing purchasing decisions. A later entry in the media information pack exemplifies this 'striated' model of communication (Massumi in Deleuze and Guattari 2011: xiii), which colours almost all reader-writer interaction within the pages of *Sound On Sound*. The entry reads:

'With probably the most qualified and experienced editorial team to grace any music magazine's staff list, Sound On Sound's internationally respected editorial integrity formed the basis of its success in the early years, and remains the cornerstone of its longevity today ... Sound On Sound brought a new philosophy and a new look to the nascent world of home-studio recording magazines in

1985: more color, more content, more style and above all, more editorial depth, written and edited not by journalists, but by experienced studio practitioners who were using the gear they wrote about on a day to day basis. This process remains at the core of the publication today, resonating with an informed readership, hungry for experienced-user insight rather than recycled marketing hype' (Sound On Sound 2013a).

This statement immediately establishes a position of privilege and power, largely through tone and word choice that imply a hierarchical and mono-directional transfer of knowledge from *Sound On Sound* to the reader. The opening sentence in particular serves to position members of staff above the target audience within a dichotomous and striated space, by extolling the experience, qualifications and 'internationally respected editorial integrity', of the staff (Sound On Sound 2013a). In contrast, the readers are referred to as informed, albeit 'hungry for experienced-user insight rather than recycled marketing hype' (ibid.), positioning them hierarchically lower, as well as establishing a didactic model of one-way knowledge transfer and interaction from the top downwards. Whilst this is to be expected from specialist publications that rely on subject-specific knowledge, it is important to recognise that didacticism precludes the contributions of other voices to dynamic conversations, and it therefore becomes increasingly difficult to facilitate dialogues. What emerges is thus a discursive predisposition towards a dichotomy that systematically objectifies readers through means similar to those noted by Nussbaum (1995: 257). First and foremost, *Sound On Sound* denies the autonomy of the objectified, as they are precluded from enunciating (Foucault 1997: 88) and thus from making themselves perceptible or visible. This is most certainly the case when one begins to examine the limited spaces within which *Sound On Sound* permits its audience to articulate itself as I will explore later on. Within the presented discourse then, *Sound On Sound* can be seen to position itself as the professional partner in a binaristic relationship predicated on a distinction between the esteemed and the amateur, echoing the observations of Tomaz de Carvalho (2012) with respect to home recording discourse. In fact, the associated *Sound On Sound* website recognises this very relationship when commenting on the use of archival articles by audio technology students:

'The SOS web site, with its massive archive of articles, is now a major international resource and attracts a vast number of visitors, many of them music-technology students. And that's another thing; back when we started there *were* no music-technology students, other than those

on the BBC training course. You couldn't even find books on the subject' (White 2005).

By positioning itself as a progenitor of audio music technology education, the magazine can be seen as cultivating a relationship with readers that is intrinsically hierarchical and didactic. One again, although this is to be expected from specialist publications, the exclusion of reader participation by limited means of engagement ensures that knowledge is articulated as a means of asserting dominance, regardless of intent. More than this, readers are objectified as *Sound On Sound* effectively assumes ownership over the establishment of music technology students outright. Referring once more to the work of Nussbaum, one can observe that ownership is listed as a potential means of objectification. She defines it as follows: 'Ownership: The objectifier treats the object as something that is owned by another, can be bought or sold' (Nussbaum 1995: 257). In doing so, the magazine reveals its dependence on the objectified for its continuation, thus also fulfilling Nussbaum's first clause of objectification: 'Instrumentality: The objectifier treats the object as a tool of his or her purposes' (ibid.). The mutual interdependence of the object and subject here is thus representative of a phallogocentric system following the work of Derrida (2001: 22), Butler (1990: 18), and Haraway, as 'the object both guarantees and refreshes the power of the knower' (1991: 197). Fundamental to the perpetuation of this phallogocentric model is the aforementioned reliance upon news and review articles within the magazine that position authors and editors above the reader as a consequence of their assumed privilege (Heward 2009: 1). The *Sound On Sound* website similarly positions the magazine in this capacity, preferring to champion the magazine's variety of featured product reviews rather than its engagement with these technologies in broader contexts for creative practice, thus constructing readers as consumers and limiting their potential agency. The website 'about' page reads as follows:

'Every month our UK and USA editions deliver consistently more pages than any competing title, packed full of in-depth product tests of Recording Systems, Music Software: DAWs, Virtual Instruments, Plug-ins, Synthesizers, Keyboards & Rack Modules, Music Computers, Samplers, Soundcards, Mixing Consoles, Effects & Signal Processors and not forgetting studio essentials like Microphones and Monitors, plus the best Musician/Mix Engineer/Record Producer interviews you'll read anywhere' (Sound On Sound 2013b).

Sound On Sound appears to purposefully pursue a discourse that promotes the discussion of technology in more isolated, streamlined, 'review' contexts. In addition, whilst the statement above mentions the presence of interviews with industry professionals, the inclusion of this information at the end of such a lengthy list of specialised recording terminology is suggestive of their diminished importance within *Sound On Sound*, and is confirmed when one considers that forty percent of readers come seeking review content (Sound On Sound 2013a). The use of industry specific terminology is therefore worthy of further consideration here, as its inclusion has far reaching implications when considering the nature and model of communication between *Sound On Sound* and its readers.

Sound on Sound can arguably be seen as assisting in the perpetuation of a binary divide between amateur and professional through the use of specialised terminology, in that its inclusion serves to appeal to those familiar with its meaning and function whilst simultaneously distancing those without the requisite knowledge to participate. The existence of this binary community rooted in knowledge has been confirmed by the work of Tomaz de Carvalho who has observed that one must 'master the language used by professionals and other recordists' (2012) in order to participate. She continues, noting that "“Good” home recordists are expected to know how to name different gear, their function and their specifications. They are usually questioned about the technical details of their recordings' (ibid.), further emphasizing the significance of gear fetishism, most importantly, in a capacity that stresses the articulation of technical knowledge. Tomaz de Carvalho continues: 'as technology has a central role in recording, it seems that the more one is literate on that matter, the more she/he is seen as an *expert*, which according to the discourse is one of the possible subjectivities of the “pro”' (ibid.). The script (Akrich 1992: 208) of *Sound On Sound* can then be said to present technical literacy as a prerequisite to participation, with the magazine editors assuming the position of the 'pro'. By perpetuating this script, it is arguable that *Sound On Sound* is intrinsically phallogocentric, in particular as participants are required to enunciate using the appropriate tropes in order to be made visible. In discussing the emergence of technical knowledge within the music press, Théberge has noted that 'during the mid-'80s, ... it was often necessary for the magazine editors to seek out software developers and product specialists as authors of magazine articles on new products. In many cases, they were the only people who had adequate knowledge of all the available product features' (1997: 113). One can therefore observe the

correlation between specific technical knowledge and one's perceived hierarchy within the community. Once again, I do not mean to suggest that hierarchy is fundamentally objectionable, but rather that the authority attributed to the knower within phallogocentric scripted texts allows for the oppression of the object if dynamic conversations are precluded from taking place.

Within *Sound On Sound*, product reviews are rife with comparable technical terminology and thus inevitably focus on narrow technical specifics rather than technology's application for creative practice, thus constructing readers as consumers and perpetuating the trope of gear fetishism. In this sense then, a technology's purpose, and indeed the way in which readers are expected to use and engage with it can be considered to be largely scripted by this focus on technical specifications within isolated review contexts. In an exchange with Editor in Chief Paul White, I questioned the necessity of product reviews within *Sound On Sound* and comparable industry magazines and contemplated whether such a detailed focus on products could be seen as promoting gear fetishism. White's reply was illuminating in that it shed light on how mediators between products and audiences view and manage their audience's expectations:

'Certainly product reviews are an important part of any specialist magazine's content as it is something the readers want and rely on, though we also cover lots of other areas to achieve an editorial balance. I don't think it would be practical to run a magazine like ours without product reviews, especially as we have a reputation for depth and accuracy' (Annetts 2013).

The tone presented by White here is one of economic pragmatism, with action taken out of necessity for institutionalised expectations. In doing so, it is arguable that the mutual interdependence of the object and subject is assured, and thus *Sound On Sound* can be considered representative of a phallogocentric archive, particularly when one considers the emphasis placed on what I have previously demonstrated as being historically 'masculine' attributes, a knowledge of which is substantiated or 'refreshed' (Haraway 1991: 197) by the readership (Derrida 2001: 22; Foucault 1997: 129). This is a sentiment reinforced when one considers White's statement from earlier in the same exchange (Appendix C). Here, when asked specifically about the presence of gear fetishism within the audio technology community, White responded: 'As for gear fetishism — that's what keeps the industry running' (Annetts 2013). The admission that there exists a tendency to favour technology-focussed

content is indicative of the existence and perpetuation of an institutionalised discourse that favours a limited, and perhaps more superficial discussion of these technologies. The suggestion that gear fetishism is partially or indeed wholly responsible for the continued existence of the industry as a whole only serves to solidify this notion, and is suggestive of the significance print media plays in scripting and reinforcing these tropes within the community at large.

White's concluding statement is also worth unpacking here. One can observe the idea that depth and accuracy can only be achieved through the systematic deconstruction of technology, and additionally, that this act is imperative to the reputation of the author and/or the institution. This focus parallels what was previously suggested in Chapter Three with regards to the phonograph, and specifically its reappropriation and reinscription via deconstruction by men. The phonograph was initially ensconced by a cabinet of some description, thus keeping the core technology hidden, however it was through the testing and measurement of this technology's capabilities that men sought to engage in a discourse on sound. The phonograph (both literally and physically) 'opened up the possibility of interacting socially through music ... [allowing] men to engage in activities that had long been constructed as feminine pursuits, but in ways that encouraged mastery and exploration rather than uplift and education' (Katz 2004: 68). Considering more closely *Sound On Sound's* focus on product reviews and its fixation with 'depth and accuracy' then, it becomes possible to witness the underlying gear fetishism that typifies *Sound On Sound's* community engagement. To elaborate, authors and editors can be said to rely upon the knowledge assumed through the deconstruction of technology in order to retain what has previously been identified as the student-teacher dichotomy implicit to the magazine's content (Tomaz de Carvalho 2012; Nussbaum 1995: 257; Haraway 1991: 197). Product testing can therefore be identified as one of the key components with which the content creators are able to demonstrate their knowledge, and thus their hierarchical position within the community as a whole, as well as satiating readership expectations.

A reader survey conducted by *Sound On Sound* in 1998 similarly championed consumption in the continued existence of the audio technology sector, but more so, cited purchasing as the fundamental way in which *Sound On Sound* readers were able to establish their hierarchical standing within the community. The survey explained: 'Here at editorial HQ, we like to think that SOS readers are serious about recording and music-making, and this is emphatically borne out by

what you stated you had spent on *new* hardware/software in the past 12 months' (Gilby 1999). By attributing a reader's sincerity and legitimacy to their willingness and ability to spend money on audio technology, *Sound On Sound* is affirming that there exists not only a barrier to entry and participation within the audio community but also that one's possession of the appropriate equipment is intrinsically linked to one's perceived hierarchical position (Marx 1887 [2015]; Veblen 1899 [1918]). Considering this alongside what I have previously demonstrated to be the significance of deconstructing technology in establishing and maintaining knowledge above that of the reader, *Sound On Sound* can be considered to perpetuate a fixation with gear acquisition, and thus an exclusive model of community engagement. When one also considers the emphasis placed by the magazine on acquiring '*new* hardware/software' (ibid.), it also becomes possible to better understand White's earlier suggestion that gear fetishism 'keeps the industry running' (Annetts 2013). Théberge has also suggested that reader surveys are useful in tracking audio technology consumption. In this context, he states:

'Readers have been regularly asked to respond to questions concerning their age, sex, income, interest in the magazine, the kind of instruments they own, and, more importantly, how much money they are likely to spend on their *next* purchase and the kind of instrument it will be ... these surveys indicate a move away from a concern with the representation of a readership, a "public," and toward supplying marketing information to advertisers' (Théberge 1997: 121).

The emphasis placed on future consumption here demonstrates a recognition of gear fetishism in line with White's perception. More than this, however, surveys are cited as a means of encouraging future purchases rather than establishing communities or a 'public'. This proves to be particularly apt in the case of *Sound On Sound*, where demographic data is included in the magazine's *UK Media Pack* (2013), which is specifically catered to the needs of advertisers.

Within *Sound On Sound*, gear fetishisation is often presented as being both habitual as well as commonplace. In an article entitled 'Buying The Equipment You Really Need' (White 2000), Paul White directly addresses this issue, but does so with the intention of steering consumers towards what he has identified as being worthy product choices:

'We've all lusted after the shiny new gear that appears month after month in the pages of *Sound On Sound* ... A personal recording studio isn't just something you buy and use. More often than not it takes on a life of its own, changing and evolving like a growing organism. And like any organism, it has to eat to survive — the staple diet in this case being hard cash! The problem is that once you've got everything set up and you're starting to get results, there's an almost overpowering urge to upgrade' (White 2000).

Although White recognises *Sound On Sound's* tendency to focus on audio technology above all else, the discourse of gear fetishism is treated as a normality. By generalising the readership in the first instance ('We've all lusted after the shiny new gear' (ibid.)), White establishes the notion as being commonplace within the community, and so can also be said to promote or project an ideology of consumption. It is important to acknowledge that the use of the word 'lust' is intrinsically fetishistic in the sense that it promotes both a sense of devotion, but also a sense of sexual gratification through consumption. On this last point, it is worth noting that 'gear lust' is a staple term of audio technology discourse and recurs throughout the publication history of *Sound On Sound* as well as in other media (see Bennett 2012c). A closer examination of the term is thus necessary and occurs later within this chapter. Returning to the article above, when one considers that the piece is highlighting gear fetishism as a means of promoting products endorsed by the magazine editor, it becomes apparent that there exists a fundamental discrepancy. On the one hand, White portrays the fixation with audio technology products as being somewhat problematic, however, he continues to state the following:

'I'm sure that at one time or another we've all convinced ourselves that adding a certain piece of kit was going to make all the difference to our recordings, but then once it's paid for and wired in, we find it doesn't really make any appreciable difference. I hope that this article will help prevent such disappointments' (White 2000).

This statement implies a degree of wariness towards product fetishisation on White's part, particularly with regards to obsolescence and what Théberge has identified as futurology. This is described as 'this constant forward looking - this deferral of pleasure and satisfaction into the future - [that] contributes to the sense of desire and need that is necessary to maximize the pace of technical innovation and profits' (1997: 119). However, taking into account the use of well known brand

names within the body of the text ('the almost laughably cheap Rode NT1 and Oktava MK219, via Audio Technica AT4033s and 4050s to a Beyer MC740 that cost over a grand' (ibid)), one can observe that the piece continues to promote the acquisition of technology through a critique of this very practice. The use of technical terminology is worth drawing attention to here, specifically since it forms what Tomaz de Carvalho has called the 'language of the professionals' and thus serves to maintain a subject/object dichotomy (2012).

The article can then be said to simultaneously present two conflicting stances. Whilst White appears reticent to recommend technology without clear purpose, he often, perhaps inadvertently, positions the purchase of technology as a means of asserting privilege and thus the emphasis of the article remains very much on the selection of audio equipment as a means of asserting one's hierarchical standing within the community (Heward 2009: 1). White cites the possession of equipment as facilitating his own position of authority and uses this to legitimise the didactic model of communication presented within the article. He states:

'I'm as big a technoholic as anyone, and I've also had the advantage of being able to try out and compare hundreds of pieces of review gear in my studio. This puts me in a good position to provide a few pragmatic pointers to the best way to select gear' (White 2000).

Although this might not initially appear problematic, after all practical experience is essential in specialist publications, it is important that the underlying model of communication be acknowledged and understood. White is positioned above the reader as a result of his knowledge, however the structural composition of the article assures the phallogocentric distinction between the object and subject, as well as their mutual dependence (Haraway 1997: 197). By fetishising technology, the *Sound On Sound* article can be said to inhibit the establishment of more varied discourses on technology in that its discussion is isolated somewhat from real-world applications. This contrasts starkly with the far less mediated discussion of technology within *Tape Op*. As Sterne suggests of *Tape Op*, 'recording is discussed as a lived experience. Even interviewees who are obsessed with the gear in their studios talk about it in the context of how it's used' (2000). In contrast, by focussing the discourse of audio technologies around gear fetishism and isolated instances of their application, White is able to assume a position of hierarchy that serves to perpetuate a restricted model of communication that remains didactic.

In addition, the frequency with which the cost and pricing of equipment is used as a means of differentiating between what are considered to be amateurs and professionals, provides further evidence of the way in which gear fetishisation serves to stratify the community (Massumi in Deleuze and Guattari 2011: xiii). As Tomaz de Carvalho has observed, 'the expensive and well-equipped professional studios continue to be the ideal model to be followed by home recordists' (2012). Paul White's comments targeted towards lower cost equipment are often derisive, and representative of an overall elitism. He states: 'After all, we know that more expensive generally equates to better' (White 2000). Within *Sound On Sound*, then, the fetishisation of technology is often discussed in relation to one's financial means. Another example would be the recurring use of the phrase 'gear lust', which is articulated as the physical desire of technology, often linked with voyeurism (Bennett 2012c: 124), rather than its general discussion, and as such can be considered as a single contributory element to the fetishisation of audio technology overall. Recognising this, gear lust can then be considered as a particularly phallogocentric trope that promotes the discussion of audio technology in isolated contexts, often in relation to one's financial means, as a method of obtaining or preserving a hierarchical position within the community. An article entitled 'Gear Lust' produced by *Sound On Sound* contributor Jeff Mearns serves to demonstrate the features of this trope, wherein the significance of both money and influence are positioned as being inextricably linked, as well as being imperative to one's hierarchical standing. He states:

'Surely, therefore, I have conquered the irrational urge that once made me lust after the state of the art? After all, I know my ageing equipment inside out, I understand its peculiarities and whims, and I know how to get the best from it. Wouldn't it be sensible to remain faithful to this trusty old gear, rather than throw away another £50K buying another collection of studio kit, spend two years learning to use it, and then find that this too is obsolete? No way! The moment I get my hands on some money, I'm after a G4 and *Logic Platinum* and an S6000 and an 02R. Will I learn?' (Mearns 2000).

In the first instance, it is important to note that Mearns addresses the trope of gear lust, and thus the fetishisation of technology, as being irrational. The rhetorical devices used throughout the article serve to emphasise this point by conveying an internal struggle of sorts. What is perhaps most illuminating however, is the manner in which Mearns often refers to technology throughout the piece. The

author makes a point of using both the price and branding of audio technology products as a means of asserting dominance. Despite Mearn's seemingly genuine breakdown of his 'irrational urge' (ibid.), the superficial specificities of the equipment referred to, such as the 'G4 and *Logic Platinum* and an S6000 and an 02R' (ibid.) are often shallow and underdeveloped and thus betray his insincerity. More than this, the use of the terminology such as 'conquered', 'gear' and 'kit' reflect what Susan Rodgers has identified as 'militaristic language that inflects contemporary music-production terminology' (2010b: 475). Furthermore, the author's references to his own economic power can be seen as stratifying the community discourse by distinguishing between participants based on their perceived financial capacity as noted by Tomaz de Carvalho (2012), Bennett (2012a), Sterne (2000) and Wernick (Wernick in Théberge 1997: 119).

As a consequence of both the privileging of knowledge through shallow equipment references and differentiation based on one's financial capacity, the article succeeds in establishing a didactic tone of voice concerned with objectifying those considered external or in non-compliance with these two supposed prerequisites. The tone of the article throughout is one of normalised behaviour, emphasised in closing by the author's final comment, 'Will I learn?' (ibid.). It is important to note here that the use of rhetorical devices, as well as the use of technology as a means of asserting dominance are not merely textual observations, but rather are essential structural components of *Sound On Sound's* overall presentation. By this, I mean to suggest that these features are purposefully employed as a means of objectifying community participants and thus in securing author dominance within the aforementioned reader/writer co-dependency. The following example is demonstrative of these features:

'When was the last time you took the trouble to trawl through one of your older sound modules or a familiar sample CD, looking for a fresh perspective? Under the time pressures of a working studio, very often it's a luxury we tell ourselves we simply can't afford. We see forking out another grand or two on the latest bit of kit as a much safer option — and who doesn't enjoy unwrapping a new toy? ... So would this ... make me consider not buying a lovely new G4 Big-Mac with everything on it? Of course not' (Farrer 2001).

Here, exclusivity is achieved by generalising readers through the use of rhetorical devices. The author asks 'who doesn't enjoy unwrapping a new toy?' (ibid.), a rather innocuous phrase that nevertheless succeeds in promoting a

dichotomy rooted in the alienation and exclusion of those who might disagree. Therefore, as well as dictating who can enunciate and language to be uttered/written (Tomaz de Carvalho 2012; Foucault 1997: 88), the article succeeds in objectifying readers through the denial of agency, autonomy and subjectivity (Nussbaum 1995: 257). The object's denial of subjectivity can similarly be witnessed in following example taken from *Apple Notes*, a monthly recurring section dedicated to diagnosing and discussing Apple computers:

'In my more general SOS articles, I've often (frustratingly) had to bear in mind that some of our less privileged brethren are forced by poverty, miserliness or plain pig-headedness to use the compromised hardware and software foisted upon the world by the Wintel conspiracy. So I look forward to being able to trot out this kind of smug, biased observation in the relative safety of Apple Notes, knowing that I'm preaching to the converted' (Whiffen 2001).

The author of the article, Paul Whiffen, displays an elitist attitude towards objectified readers as a consequence of their chosen equipment. In this instance, product branding is presented as the sole means through which both the author and readers are expected to substantiate their knowledge, in the sense that one's physical possessions act as intellectual or cultural capital. This same principle is also used to differentiate between readers, separating the 'less privileged brethren' from 'the converted' (ibid.). Whiffen alienates those he deems to be users of the 'Wintel conspiracy' (ibid.) as a means of promoting inclusivity with Apple computer users, however the discourse and structural composition of the article remain fundamentally didactic and thus both parties remain objectified, with Whiffen remaining the phallogocentric subject in this exchange (Derrida 2001; Foucault 1997: 95). The overall construction of the piece, entitled 'Reader's Problems', is representative of *Sound On Sound* as a phallogocentric archive, as readers/objects are expected to appeal to the knowledge base of the author, thus 'refreshing the power of the knower' (Haraway 1991: 197) and solidifying the binaristic stratification of the community as recognised by Tomaz de Carvalho (2012).

It is useful here, to briefly make a comparison with the structural composition of *Tape Op*, a magazine whose appearance as a comparatively rhizomatic form allows for the conduction of dynamic, two-way dialogues (Deleuze and Guattari 2011: 7-8). The inclusion and prominent featuring of reader-generated content within *Tape Op* allows for dynamism within exchanges, that often span multiple

magazine issues rather than resolving as part of a simple question and answer dialogue as seen within *Apple Notes*. In contrast, the underlying, phallogocentric system of *Sound On Sound* can only ever be conducive to fundamentally binaristic tropes such as 'gear' acquisition (Théberge 1997: 108), that distinguish and often discriminate between those perceived as able/unable, visible/invisible, subject/object participants, a simplistic system of categorisation that necessitates a fixation on accruing a symbolic sense of power and knowledge (Lyotard 1997: 8-9).

5.3 Exclusion and Democratisation

As of 2013, the readership of *Sound On Sound* is 'predominantly male (96%), with an average age of 34. Over a third of all SOS readers (36%) derive their main income from music or music-related activities, while the remaining group displays a majority of middle-to-high-income professionals' (Sound On Sound 2013a). Comparing these readership statistics to those of *Tape Op* magazine, one can observe that they share almost identical demographics (see Chapter Four and Appendix B). In isolation these statistics tell us relatively little, however considered side-by-side, they are representative of the overwhelming homogeneity of the audio technology domain. Comparing a *Sound On Sound* reader survey from 1998 with the results from 2013, it is interesting to observe how little the demographic has changed over time. In an issue in the late 1990s, Ian Gilby explained to the SOS readership: 'As expected, most of you are male (97.3%) with only 2.5% females and, interestingly, 0.2% omitting to state your gender (*hmmm...*)⁸. The average age is 34.4 years' (Gilby 1999). Given the unchanging demographic, it is therefore necessary to more closely examine the nature of communication presented by readers, so as to better understand how the community has sustained itself in the face of developments that threatened to destratify this model. On this point, I am primarily referring to the massification of audio devices such as the introduction of digital audio workstations as previously discussed in Chapter Two, and the democratic potential of audio tools as noted by Théberge (1997: 72), Homer (2009: 90), Heward (2009: 14) and Barber (2012).

Whilst audio technologies are created to serve well-defined, practical, roles within a recording or reproduction environment, the privilege of understanding their

⁸ The binary logic and representation intrinsic to *Sound On Sound* is arguably threatened here, resulting in unnecessary comments from Gilby concerning those who opted to omit their gender when asked to signify within a binary system.

operating principles often eclipses these purposes in larger community interactions, relegating the technology itself to a symbol of status and knowledge (Tomaz de Carvalho 2012; Théberge 1997; 118-119). A recurring example of this is evidenced in *Sound On Sound*, when the features and design principles of technology that are deemed to be 'accessible' are routinely derided by those within the editorial staff, as such features threaten to de-stratify what are considered to be earned hierarchical privileges (Bennett 2012c: 139). Discussing the relatively accessible Digital Audio Workstation *Acid*, for example, *Sound On Sound* editor Paul Ward suggests:

'Programs such as Sonic Foundry's *Acid* take us the next step [sic]. There's now no need to possess any skills beyond the ability to load a CD-ROM and drag WAV files with a mouse. To be fair, *Acid* is one of the better examples. New examples appear almost daily of "DJ-style" music "production" programs with pre-recorded samples, all pre-looped, pre-pitchshifted to the same key and pre-nailed to 140bpm, ready to convince every vaguely PC-literate teenager that they are a latent musical talent just waiting to break. The problem is that they often manage to convince the record companies too!' (Ward 1999).

The flexibility and level of freedom afforded to the user by *Acid* are conspicuously absent in the account above. Instead, it is the software's ease of use that is targeted and ridiculed by *Sound On Sound*. I would argue, therefore, that all users or interested parties are objectified following the seventh clause of Nussbaum's *Objectification* within this exchange: '7. Denial of subjectivity: The objectifier treats the object as something whose experience and feelings (if any) need not be taken into account' (Nussbaum 1995: 257). This is achieved within the text by ridiculing the users of *Acid* and thus positioning the technology beneath that of the editorial staff. Ward continues:

'My ability to program a rhythm from scratch was seen as little short of miraculous. I would have thought someone was taking the piss if this story had been told to me, but here were a bunch of "musicians" who lacked even the most basic skill of programming their own rhythm patterns' (Ward 1999).

In this instance, the editor is firmly asserting his knowledge and thus his hierarchical position over and above the users of the DAW by stressing one's technical prowess. As Théberge has confirmed, 'programmability [is] still important as a status symbol' (1997: 76). In doing so, the discourse effectively insulates *Sound On Sound* from

those who fail to 'possess any skills beyond the ability to load a CD-ROM and drag WAV files with a mouse' (Ward 1999). The software is thus positioned by the magazine as functioning in direct opposition to the tacit knowledge inherent to the audio domain that previously ensured the preservation of the recordist (Horning 2004a: 704) and the distinction between the amateur and the professional (Tomaz de Carvalho 2012). In contrast, technologies that are perhaps more complex in their construction or operation, are frequently labelled as being for professionals only, and thus similarly promote exclusivity. *Sound On Sound* can then be seen as establishing a kind of double standard, whereby the technology is presented as being either too complex for the average user, or too simplistic for the seasoned engineer. When reviewing the TC Electronic Finalizer Express in February 1999, Hugh Robjohns exemplifies this propensity:

'It could be dauntingly complex to set up and use, requiring the operator to have a good understanding of the underlying technology to make best use of the process ... the Finalizer was designed as a professional tool. Letting a musician with perhaps just cassette multitracker experience loose on a Finalizer would be like putting someone who had just passed their driving test in a Metro into a McLaren F1 on the Nürburgring!' (Robjohns 1999).

It is important to recognise here that Robjohns acknowledges the rather specialised nature of the product as well as the associated privilege of understanding its operating principles. However, the editor purposefully employs a simplistic binary distinction as a way of differentiating between professional and amateur recording enthusiasts. Musicians with 'just cassette multitracker experience' (ibid.) are objectified within the discourse. In contrast to this, *Tape Op* magazine can be seen as promoting inclusivity through its articles as Jonathan Sterne has acknowledged. When specifically referring to the discussion of tape recorders in the magazine, he notes that '*Tape Op* takes cheap cassette-based recorders as seriously as the latest computer-based technology' (Sterne 2000), thereby recognising their legitimacy as a means of audio recording and/or reproduction. By placing an emphasis on what Crane refers to as 'having tools to help you get the job done' (Annetts 2013), *Tape Op* can be said to function in opposition to *Sound On Sound's* fixation on product consumption to a certain extent.

Whilst the majority of *Sound On Sound's* 230 total monthly pages consists of news and reviews of audio technology products, the remainder is largely more

readership-focussed, with articles targeting a series of isolated topics. Most articles within the magazine are categorised within the following overarching structures: Reviews, People & Opinion, Technique and Sound Advice. Whilst the reviews section is self-explanatory, it is worth unpacking the content of the other items here, as these broad headings are essentially umbrella captions for many smaller recurring segments. Recurring features under the 'technique' heading include tips and strategies for use within a variety of DAWs as well as the discussion of traditional dedicated hardware that includes an array of sequencers and samplers. These are typically labelled as *Pro Tools Tips and Techniques*, *Cubase Tips and Techniques* etc. The overall content is typically specialised, resulting in the exclusion of those outside of the audio domain, as well as the inner stratification of the *Sound On Sound* editorial staff from the readership. The following example was taken from a recurring feature entitled *Ableton Live Tips and Techniques* and epitomises both the instructive tone of the author, as well as the reliance upon jargon previously considered:

'Vielklang installs as a MIDI instrument and buffers audio along its own timeline, which can be independent or synced to Live's. It creates up to three harmony parts based on your specifications, and plays back the original and harmony parts synced to Live's timeline. The easiest way to create a number of harmonised clips for triggering from Session view Clip Slots is to create an empty MIDI clip on the Vielklang track that spans the whole time range used in Vielklang (select the time range and type Shift+Command+M or Shift+Ctrl+M), then freeze the Vielklang track' (Sasso 2012).

The article is fundamentally instructive and yet despite being formulated especially for the readership, does not present opportunities for significant community involvement. Instead, it appears rather as though the reader is expected to follow along with the printed instructions. Although it is significant that the software itself requires such inputs so as to function as intended, the instructive approach is much more restrictive in terms of reader interaction. In comparison to the more exploratory fashion in which technology is discussed within *Tape Op*, *Sound On Sound* can be seen as promoting formality. By this I mean to suggest that the implicit didacticism restricts and inhibits the development of more investigative or experimental techniques with respect to audio equipment. On this point, *Tape Op* magazine can typically be seen to promote DIY and unconventional recording and production methodologies without a specific technological or brand focus. The

following example, labelled as a 'Recording Recipe', provides an illuminating comparison with what can be readily observed within *Sound On Sound*:

'Here's a few "input devices" that I've discovered through the ineptitude and squalor of my youth. Although I've since bought some real microphones, I'm still foolish enough to use the following on occasion, and I encourage you to expand your microphone paradigm as well' (Morrison 2000: 52).

In the first instance, it is significant to recognise the complete lack of brand names or particularly specialised terminology within the article. By eliminating material prerequisites to participation, the author can be said to effectively undermine notions of privilege attached to these very same possessions and thus exclusion based on perceived economic power (Tomaz de Carvalho 2012). The author, Morrison, even goes as far as questioning the very construction of this accepted discourse, by inviting readers to experiment with the 'microphone paradigm' (ibid.). By challenging widely accepted notions of what might constitute an input device, Morrison diminishes the significance of specialised technology within the community, and so establishes a more inclusive discourse. This is emphasised when one also considers the overall tone of the article, specifically the author's self-deprecating manner. Morrison refers to himself as 'foolish' (ibid.) and thus can be seen to affect a sense of fallibility, and thus establishes an overall discourse that functions in stark juxtaposition to *Sound On Sound*.

The 'technique' section of *Sound On Sound* can be seen to restrict community interaction further with the inclusion of several other recurring articles: Mix Rescue, Studio SOS, Playback and Classic Tracks. However, before a more detailed analysis of these articles is undertaken, it is first useful to deconstruct the titles under which these pieces appear as a means of assessing both audience and editorial expectations, as well as the implications for community involvement. Both the titles Mix Rescue and Studio SOS prove to be particularly illuminating here, as they use comparable syntax that is sensationalist in style and evocative of a crisis or problem of some sort. The implications of this are significant in that community interaction is then positioned as a form of problem solving. Readers' problems, which are oftentimes articulated as blunders, are deferred to the *Sound On Sound* editorial team for resolution within the body of the articles themselves. This ensures that the respective roles of both the reader and the editorial staff are clearly marked from the outset, and thus constrict the available discourse formations within the

main text. In addition, the mutual dependence of the crisis and the solution serves to reiterate the phallogocentric text of the magazine that privileges the subject over the objectified (Haraway 1991: 197). Through the use of these titles, the methods of community engagement employed by *Sound On Sound* staff often come across as a form of outreach to the objectified (Nussbaum 1995: 257). In order to fully portray this concept, it is important to first assess the manner in which problem solving is understood within the articles themselves, and more than this, what constitutes a problem in the first instance.

As previously mentioned, a problem is often articulated as a blunder or mistake within the articles of *Sound On Sound*. At this point, it is important to recognise that audio technology use is inherently subjective and thus dictating a formally correct protocol or procedure places a notable over-reliance upon knowledge as a means of establishing correctness. Whilst *Sound On Sound* often recognises this fact, the deferral of responsibility to a member of the editorial team can be seen as promoting a didactic form of education. This contrasts heavily with *Tape Op*'s open promotion of experimentation, such as the inclusion of DIY instructions (Crane 2007: 48-70) and an overall emphasis on 'learning how to make great recordings with whatever tools you have access to' (Tape Op 2013). In this way, users are empowered as opposed to relegated within a community hierarchy.

Within a *Sound On Sound* mix rescue article, a reader's audio project is selected and subsequently remixed by members of the editorial team whilst demonstrating both the technical and aesthetic choices behind the alterations made. Through a closer inspection of these articles, it becomes possible to observe how the editor targets areas of the contributing reader's production or recording, labels them as problematic and subsequently assumes a position of power through their resolution. The following text is taken from a Mix Rescue article within *Sound On Sound* and is typical of both its style and content:

'With the basic vocal tone in the can, I started work on the acoustic guitar, which appeared to me to constitute the harmonic and rhythmic backbone of the track. This had been recorded with an SE Electronics SE2A mic in an SE Electronics Instrument Reflexion Filter, with the mic positioned quite close to the fingerboard around the 12th fret so that it picked up quite a lot of finger noise. A DI signal had been captured at the same time, and this had good sustain but suffered from the usual "dead" sound, as well as some big low-end peaks in the more driving sections whenever Phil's right hand hit the body of the guitar. The LF thuds could be dealt with simply with a high-pass filter on the DI channel at 65Hz, and I also put in this filtering to deal

with the same (albeit less pronounced) problem on the mic channel. My next thought was to experiment with the phase relationship between the mic and DI sounds — because sound takes a small amount of time to travel through the air to the mic, the DI signal always leads the mic signal in this kind of recording setup. One approach is simply to look at the audio waveforms and realign the waveshapes by eye, but that's not as easy with an acoustic guitar part as it might be with an amped electric bass, because the waveshapes don't often match that closely. Besides, adjusting the phase relationship is as much about taste as it is about technical accuracy, because changing the phase relationship and balance between the two signals adjusts the nature of the comb-filtering between them and thereby gives access to a whole set of creative tonal options. You can easily line up the waveforms perfectly and then not like the sound as much as when they're out of alignment!' (Senior 2008).

The editor, Mike Senior, first locates details in the mix, labels as them as problematic and provides a solution. Through the practice of problem solving, the editor is able to assume a position of power, not only over the individual, but also the entire readership. This becomes apparent in the example above where the resolution of the 'LF thuds' (ibid.) acts as a segway into a more detailed, instructive discourse concerning phase relationships between microphone and direct injection signals. It is significant to note that by labelling *perceived* faults or errors as such, the assumed power of editorial authority sets a precedent within the community regarding 'correct' practice and procedure. This once again stands in direct odds with what can be perceived within *Tape Op* as the encouragement of experimentation and the embrace of recording mishaps (Crane 2007: 48-70). Structurally, the Mix Rescue articles can be seen to reinforce the thematic content of the main text itself. A 'remix reactions' section, usually present at the close of the article, presents further opportunities for the inner stratification of the *Sound On Sound* community, within which the remixed work is assessed by the contributing reader:

'I was blown away with the extent to which Mike was able to take a pretty averagely mixed and recorded song and come up with something that not only sounds incredibly professional, but manages to maintain and enhance the emotional heart of the song. Magic!' (Senior 2008).

The inclusion of a statement from the contributing reader serves to legitimise both the aesthetic and structural changes made to the mix and can therefore be

considered to normalise the student/teacher dynamic. The remix reaction presented here is a notable exception within *Sound On Sound*'s typical practice of community engagement as the magazine typically features strictly regulated Q&A and FAQ sections, within which readers' questions almost exclusively focus on technical details and thus can be considered as a particularly effective means of establishing editorial authority. Here it is useful to investigate comparable audience interactions within *Tape Op* magazine, specifically the ways in which one-on-one exchanges are conducted and articulated.

Readers of *Tape Op* magazine are encouraged to submit letters as a component of community interaction, and are thus privy to direct communication with the editorial team as well as industry practitioners in a far less mediated fashion. Through the inclusion of reader-authored content and the practice of less stringent editing, *Tape Op* can be considered to facilitate more open discussions that empower the readership. The following example is demonstrative of the destratified model of community interaction present within *Tape Op*, and illustrates how the magazine functions as a mediator and platform for community communication, even when faced with potentially sensitive subjects:

'Thanks for the insightful and honest-reading interview with Mike McCarthy [Tape Op #94]. I've been a long time admirer of his work. He came off as modest and to the point. Nice work. In contrast, I was so put off by Paul Leary using the word "retarded" several times in his interview that I threw issue #94 in the trash. I know that word is often used in various circles, but its very obvious and direct connotation shows poor taste and judgment on the editor's part. In a community such as *Tape Op*, where engineers, producers, and musicians strive to articulate their passion and knowledge, of and for, their craft, an adjective like "retarded" that gets thrown around between 7th graders in the back of a school bus, puts those who sling it into a certain sub-category. I don't care how much I used to love Butthole Surfers. Neil Young would never use that word as an adjective to describe anything happening in the studio, nor would anyone else who has a member of his or her family, or a close friend, with any developmental delays whatsoever' (Reynolds 2013: 12).

The author of the letter, Luke Reynolds, is shown here as being concerned with the magazine's editing process, specifically its stance with respect to censoring content. Interestingly however, one can consider this as a discussion only permitted to occur as a direct consequence of the very lack of mediation the author is critiquing. It is therefore important to recognise that whilst *Tape Op*'s less stringent

editing process facilitates in the creation of a wider variety of discourses, this very same openness simultaneously lends the magazine a degree of malleability and thus there exists a fundamental lack of editorial control. By this I mean to suggest that *Tape Op* can often act as a platform from which the majority are able to voice their opinions due to an absence of editorial intervention. The following reply from editor Larry Crane exemplifies this degree of impartiality with respect to editing, in that he is shown to favour less mediated discourses regardless of the alienation this may cause those outside of the majority:

'I can understand your irritation with the use of the word in Paul Leary's interview, but I assume that he was not intending to malign anyone with impaired cognitive functions. And I'd guess that he'd be happy to be compared to a 7th grader in the back of a school bus. ... Occasionally I get complaints about the language used in this magazine. Most times we are simply repeating what someone has said in an interview, and I frequently ask folks if they'd like some of the "f-bombs," or the like, removed. I always hope that our interviews feel conversational; and if someone swears a lot, I'll include it to capture some of the quality of hanging out with them. It's kind of like leaving the stick clicks at the top of a song, or a loud breath before a chorus begins; sometimes it makes everything feel more intimate and real' (Crane 2013b: 12).

The exchange outlined above is illuminating in that it highlights the fundamental differences in approach between *Tape Op* and *Sound On Sound* with respect to readership engagement. One can observe that Crane is reluctant to censor or edit content, instead allowing for public discussion to occur as a component of the letters section. In contrast, *Sound On Sound* can be seen to thoroughly regulate their content as a means of establishing and maintaining control. When comparing these publications then, it is of the utmost importance to consider the implications of these disparate editing practices on their respective audiences. The letter submitted to *Tape Op* by Reynolds is useful here, in that it demonstrates how the magazine fails to create safe spaces for those outside of the perceived majority. In the absence of strict editing procedures, discourses embedded within the larger community are allowed to flourish. In contrast, *Sound On Sound* fails to allow for the creation of community spaces in any capacity whatsoever, instead maintaining strict editorial control as a means of asserting dominance over the readership. The deferral of authority to an editor is thus

presented as typical within the pages of *Sound On Sound* as the following exchange demonstrates:

'I've got a Shure SM57 and a Rode NTK and I'm not sure which I should use on vocals. This got me wondering whether it would be a good idea to use both mics and blend to taste. Is that a good plan? ... SOS Reviews Editor Matt Houghton replies: I get the impression that you've not really taken the time to systematically compare the results you get from the two mics, and haven't tried using both at once! The short answer is that either mic might work well for you, but using both together is probably a bad idea.' (Sound On Sound 2013d).

Despite the aforementioned differences in facilitating reader and wider community interaction, both *Tape Op* and *Sound On Sound* demonstrate a potential to perpetuate exclusive and insular discourses, as these are made necessary for enunciation by the majority. *Tape Op* acts as an open platform through the inclusion of a community letters section, and so can be said to reflect the opinions of its community in the absence of systematic editor intervention. In contrast, *Sound On Sound* in so far as it is tightly regulated with respect to editing, can be said to more purposefully shape the discourses adopted by this very same community. Considering this then, it becomes possible to reconcile that whilst both magazines differ considerably in their operating and editing principles, they evidently share a fairly homogenous reader demographic, (in terms of age, gender, income) that is almost identical in its composition. A direct comparison of reader demographic data serves to corroborate this fact, and furthermore demonstrates that whilst both publications claim to position education as a means of broadening the appeal of the audio technology community, there exists a fundamental lack of diversity within this group.

5.4 Conclusion

The audio technology discourses that are produced and presented in *Sound On Sound* appear to have changed very little over the course of its twenty-eight year publication history. Gear fetishism and masculinity have remained central tropes within the magazine's structural and thematic composition throughout this period and serve to undermine the 'democratic potential' often cited within academic literature. In addition, these tropes often rely upon one another for their collective perpetuation, thus increasing the difficulties for rupture and reinscription. The

methods of readership engagement employed by *Sound On Sound* are fundamentally didactic in style and approach, and are often positioned as a form of community outreach. The editorial team is thus placed within a simplistic hierarchy alongside readers, resulting in internal community stratification based on an implicit student/teacher dichotomy. In addition, the presence of the aforementioned discourses has resulted in the insulation of the *Sound On Sound* community from those classified as lacking the prerequisites to participation. These include the ownership and use of audio technology as a form of cultural capital; the articulation of technical knowledge (enunciative function) and the conformity or subordination to community hierarchy. Some members of editorial staff within *Sound On Sound* have presented an opinion of gear fetishism as being necessary for the continued existence of the industry overall. News and reviews of audio technology therefore take priority within the structural and thematic composition of the magazine itself. Discussions involving technological artifacts are often shallow and superficial with respect to the wider implications and considerations of their use, specifically with respect to social or cultural de-stratification. Spaces within which these broader implications could be addressed are lacking, leaving the readership without an alternative means of enunciation. The dominant discourse is thus resilient to change, relying on the privileging of knowledge as a means of maintaining power. The demographic of the readership is predominantly male and of middle income, all of which is corroborated by statistical data. The readership has remained fairly homogenous, and a comparative analysis of demographics shows that no significant changes have occurred in the community over a fifteen year period. Overall, my research has shown that whilst both *Tape Op* and *Sound On Sound* are fundamentally different in their construction, both arguably serve to perpetuate the very same discursive tropes as a consequence of their unique designs. Whereas *Tape Op* is more open in its structure and thus acts as a platform for the discussion of these concepts, the strict editing process inherent to *Sound On Sound* can be regarded as more purposeful in its perpetuation of the discourses addressed herein. The following chapter imagines possibilities for rupturing the exclusive, discursive tropes considered thus far and in doing so, makes an original contribution to knowledge.

Chapter Six: Masculinity and the Reinscription of Diversity

This chapter investigates the discursive trope of masculinity within the context of the audio technology domain. In particular, I examine the production and circulation of gender difference as a component of discourse and its ability to establish hierarchical power dynamics that serve to perpetuate a gendered division of labour and participation. I suggest that assertions of masculine technical competence are often wielded as a means of gendering discursive and physical spaces as male domains, and that these domains retain their exclusivity through homosocial bonding that rejects, neutralises, or repositions supposed femininities, be they symbolic, discursive or individual persons.

I have previously drawn attention to the systematic ‘undoing’ of technology by male audio technology participants and the reappropriation of audio devices through reinscription (see Chapter Three). In this chapter, however, I argue that it is essential for one to reflect this very methodology back onto the discursive construction of masculinity itself, so as to identify the means of participant exclusion and effectively reinscribe the phallogocentric enunciative function. This chapter is thus a work of two halves.

I begin by extending the definition of masculinity offered thus far in order to situate relevant discussions concerning masculinity within the context of audio technology print media, and also to investigate opportunities for rupturing these tightly regulated communities. I address theories of masculinity from within the field of cultural studies and reconcile these influential texts with the previously examined work on gender and phallogocentrism. Of particular interest here is the work of Horrocks (1995), Beynon (2002), as well as Cornwall and Lindisfarne (1994), all of whom all offer insights into masculinity and popular culture studies. I also draw upon theories of performativity and genderscript as previously discussed in earlier chapters; the work of Butler (1990) and van Oost (2005: 194-196) being essential with regards to these concepts. Finally, I investigate the issues of class and crisis, and how these relate to a masculine performance in the audio technology domain.

The second half of this chapter is concerned with the promotion of diversity and gender equality and, to this end, pays attention to texts and institutions that seek to promote these ideals; in particular the work of Tara Rodgers (2010a) and Women’s Audio Mission. I contend that Women’s Audio Mission functions as a *public* site of audio domain reinscription that challenges the dominant masculine

genderscript. It thus offers the possibility for rupture and the enactment of more varied gender performances and genderscripts. In doing so, it also works to rectify institutionalised perceptions of public and private rooted in nineteenth century gender stereotypes.

6.1 Hegemonic Masculinities and Exclusion

Above all else, it is important to recognise that 'masculinity' as a concept is always pluralistic and is thus composed of many differing masculinities. When discussing masculinity hereon, then, consider the singular term to encompass the numerous possible forms, expressions and 'performances' of masculinity (Butler 1990). Therefore masculinity (singular) as a standardised container can be considered as being informed by numerous cultural, historical and political locations and their associated masculinities (plural). As an extension of this, then, masculinity must not be considered as being fixed or innate but rather as something to which people are 'acculturated, and which is composed of social codes of behaviour which they learn to reproduce in culturally appropriate ways' (Beynon 2002: 2). This is a sentiment shared by Roger Horrocks who suggests that 'knowledge of gender involves the absorption of a set of very complex interlocking unconscious myths about men and women, how they should behave, think, feel' (1995: 16). Enactments of masculinity then should be recognised as being diverse and mobile, as is reflected in the work of Cornwall and Lindisfarne who discuss what they term 'cultural borrowings', that is: 'masculinities imported from elsewhere and conflated with local ideas to produce new configurations' (Cornwall and Lindisfarne 1994: 12). As a concept, then, masculinity is only useful if we reject the common mis-perception of its links to biological essentialism and instead refocus our attention to its cultural and socially constructed plurality within very specific contexts.

Gayle Rubin has famously argued in her 1975 essay, 'The Traffic in Women: Notes on the "Political Economy" of Sex', that the relation between gender and sex is a 'system whereby chromosomal sex is turned into, and processed as, cultural gender,' a strategy that yielded 'analytic and critical leverage on the female-disadvantaging social arrangements that [prevailed] at a given time in a given society, by throwing into question their legitimate ideological grounding in biologically based narratives of the "natural"' (Rubin, 1975 cited in Wiegman 2002:

39). This work must be seen as a critical intervention that lent legitimacy to the analysis of sociocultural factors in the construction of gender, and, in doing so, destabilised long-held, biologically deterministic perceptions and arguments of gender. Gender and, thus, masculinity exist only as sociocultural constructions and not as intrinsic properties of persons. Extending the work of Butler (1990), Horrocks argues this very same point, suggesting that 'human beings do not simply "act" their gender and sexuality in a definitive and clearly delineated manner. They also "play with", or "put on", or unconsciously "act out", identities that may be quite contradictory to their normal outward persona' (1995: 21). It should be noted, therefore, that within the context of my own research, the concept of masculinity is specific and unique to the culture of audio technology discourse and its participants.

It must be made clear at the outset that apportioning blame to a specific oppressor for the existence and perpetuation of a dominant masculine discourse is not the purpose of this work. As Bordo suggests: 'within a Foucauldian/feminist framework ... it is indeed senseless to view men as the enemy ... most men, equally with women, find themselves embedded and implicated in institutions and practices that they as individuals did not create and do not control - and that they frequently feel tyrannized by' (Bordo, 1993 cited in Kegan Gardiner, 2002: 13). We must treat this statement with some caution, however, as although it does not invalidate masculine dominance as a trope of discourse, it nonetheless challenges the 'tidy' dichotomy of difference and dominance, subject and object, which upon closer inspection, typifies audio technology communities (Kegan Gardiner 2002: 23). It is imperative that one recognise the homogeneity of audio technology participants, who are almost exclusively white, middle-class males and are thus in positions of power and privilege that lends them so-called 'critical-leverage' in determining participants' relative inclusion or exclusion (Rubin, 1975 cited in Wiegman 2002: 39). They are, thus, responsible for their own gender performances, and, by extension, the implications of these performances for other community participants. In this work, therefore, I hope to uncover the systems that perpetuate a dominant model of discourse, and investigate opportunities for rupture and re-inscription.

It is also important to note that just as masculinity is performed, so is femininity. Horrocks has drawn attention to the implications of these performances with respect to power and knowledge, arguing that gender relations 'embody relationships of power, and form an integral part of patriarchal rule' often as 'ideological placements' distinguishing masculinity from femininity (Horrocks 1995:

6). Of crucial importance here is the tension presented between these gendered ideological placements, an analysis of which is demonstrative of how the masculine discourse of audio technology rejects, absorbs, neutralises and repositions supposed 'feminising' influences and behaviours (Marie Smith 2009: 22). The significance of a phallogocentric system of enunciation within audio technology discourse has already been detailed in earlier chapters, but is also useful to revisit here in order to more closely examine the exchanges and mediations of power outlined above. In exploring these power dynamics which Marie Smith argues are 'utterly imbued' within the field of sound engineering (2009: 24), it becomes possible to better represent the exclusivist nature of audio technology discourse. Concerning power and exclusion, Foucault has noted that 'the manifest discourse, ... is really no more than the repressive presence of what it does not say; and this "not-said" is a hollow that undermines from within all that is said' (Foucault 1997: 25). Thus, just as dominant masculine discourses of audio technology communities can be understood through an analysis of their components, we must also consider that which is not represented.

On this point, John Beynon has argued that 'in thinking of "masculinity-as-enactment" it must be remembered that those who do not perform their masculinity in a culturally approved manner are liable to be ostracized, even punished' (Beynon 2002: 11). This is a sentiment shared by Horrocks who states that 'gender is embodied in various myths, which teach, warn, punish and reward' (Horrocks 1995: 20). Key to an understanding of audio technology discourse and its capacity for exclusion, then, is the 'legitimate' performance of masculinity that is always subject to scrutiny. Participants can be said to enter into masculine cultural spaces with specific sets of masculine behaviours, provided they are capable of adopting the dominant, prescriptive, communicative model and employ the appropriate phallogocentric enunciative function (Foucault 1997: 181-182; Butler 1990: 18). Those who fail to represent within discourse thus embody the 'repressive presence', the 'not-said' (Foucault 1997: 25), and as such are ignored or denied the ability to participate. Earlier chapters of the thesis have explored these issues in some depth, but in light of a more complex examination of masculinity (and in particular 'hegemonic masculinities' as detailed below) with respect to cultural studies and the field of audio engineering, it is useful to reconsider them here.

Within the context of audio technology, my research has demonstrated that women (as an example of masculine-deviant gender performances) are given

scarce few opportunities to represent or enunciate. They must therefore be considered to embody the exclusion previously examined. In a statement concerning female representation in the music press, Paul Théberge has argued the following:

‘Even a cursory look at the division of labour within the magazines, their editorial and advertising content, or the discourses and modes of address used in the construction and sharing of technical knowledge, however, reveals a definition of technology and musicianship that is highly gendered. Indeed, the overriding characteristic of female involvement in the world of musicians’ magazines is that of near-total absence. As regards the division of labour in the magazines, the vast majority of the senior editors and the regular contributors are male. Women most often occupy positions as editorial assistants, designers on the production staff, marketing and sales reps, and so on - positions of low visibility (to the readership) and with little opportunity to speak publicly for themselves or their magazines. In popular musicians’ magazines then, males retain a monopoly on speech’ (Théberge 1997: 122).

Here, Théberge draws attention to the startling lack of female representation within the music press, citing several key causes for this problematic trend. Of significance in the passage above are the issues of low visibility, one's inability to enunciate (the masculine monopoly on speech) and the prevalent discourse of technical knowledge. The interdependence of these features is also central to an understanding of the audio technology press, as previous chapters have detailed, and is also, I argue, intrinsically linked to hegemonic masculinity theory as I will now explore.

Like the music press, audio technology magazines can be said to function as sites of inscription for so-called ‘hegemonic masculinities’. That is, the socially accepted performance of ‘being male’ in a particular time and space (Cornwall and Lindisfarne 1994: 37). More specifically, Beynon defines hegemonic masculinity as ‘a form of masculinity that gains ascendancy at a time or in a place and to which other forms are subordinate’ (Beynon 2002: 162). Hegemonic masculinities are thus in constant tension and mediation with what are known as ‘subordinate masculinities’ (Cornwall and Lindisfarne 1994). On this topic, Connell has stated that ‘dominant, subordinated and marginalised masculinities are in constant interaction’ (1995: 198). This interaction is, as Mangan has pointed out, critical to an understanding of any domain’s demographic or dominant identity performance. He states that ‘gender identity is never stable; its terms are continually being re-defined

and re-negotiated, the gender performance continually being re-staged. Certain themes and tropes inevitably reappear with irregularity, but each era experiences itself in different ways' (Mangan 2000: 22). Within audio technology discourse, then, hegemonic masculinities are particularly evident as they become established principally through the negotiation and mediation of power over time. Cornwall and Lindisfarne recognise this and continue to state that 'descriptions of masculinity need to be located squarely with respect to contested interpretations of power' (1994: 44). This is, of course, worthy of contemplation and thus throughout the thesis I have sought to draw attention to these contests of knowledge and power, as well as their interdependence within the audio technology sector. In particular, by drawing upon theories of knowledge construction and mediation such as those presented by Foucault (1977: 116), Oudshoorn and Pinch (2005: 4), Straw (1997: 7), Lyotard (1997: 8-9), Théberge (1997: 118-119) and Deleuze and Guattari (2011: 7-8), I have thus far demonstrated how power and knowledge function as means of exclusion for those unwilling or unable to perform a 'legitimate' *hegemonic* masculinity within an exclusively phallogocentric domain.

When considering the male monopoly on speech outlined by Théberge (1997: 122) with respect to the concept of hegemonic masculinity, then, it is necessary that one begin to interpret and question the various factors that result in the formation of 'legitimate' subjects and means of enunciation, and thus also 'legitimate' means of exclusion for those not represented or objectified within the phallogocentric domain (Nussbaum 1995: 257; see also Butler 1990: 18 and Haraway 1991: 197). These contributory factors to the performance of a hegemonic masculinity can be said to be rooted in the audio technology domain's systems of knowledge, or epistemes, as defined by Foucault (1997). The following discussion thus seeks to unearth the contributory factors to hegemonic masculinities by exploring correlations between the epistemes of gear fetishism and technical knowledge, prior to a more thorough analysis of the related factor of class undertaken in sections 6.2 and 6.3.

Previous chapters have examined how masculinity is enabled and enacted through a focus on 'gear' or technology, as well as models of discourse that are concerned with the articulation of technical knowledge (Théberge 1997: 108). By observing the discourse of audio technology texts, one can see how hegemonic masculine values are embedded or inscribed onto community structures, practices and even the enunciative function itself (Foucault 1997: 181-182). As Deleuze and

Guattari have stated: '*Collective assemblages of enunciation* function directly within *machinic assemblages*; ... in the sphere of a discourse implying particular modes of assemblage and types of social power' (Deleuze and Guattari 2011: 7-8). That is to say that both the discursive features of the audio domain, as well as the institutions or sites of inscription themselves, develop interdependently and thus must be examined simultaneously. The following discussion acknowledges this theory of mutual co-construction and implements it as an investigative tool as a means of exploring the intersection of gear fetishism and technical language within the audio technology domain.

Mavis Bayton has observed that specific technical terminology is often implemented as a means of asserting power over other audio community participants and thus is arguably a source of tension between hegemonic and subordinate masculinities (Cornwall and Lindisfarne 1994: 37). Bayton states that 'technical language is often used as a power strategy in a mystifying way in order to exclude women. This can happen amongst groups of male musicians, by sound crews at gigs, by technicians in recording studios and so on' (Bayton 1997: 42-43). Whilst Bayton specifically refers to the exclusion of women, it is important to remember that in order for anyone to participate in audio technology discourse, they must perform the legitimate enunciative function and in doing so, acquire the masculine domain (Oudshoorn and Pinch 2005: 10; Foucault 1997: 96; Thompson and McIntyre 2013). Thus women, just as men, must effectively perform a form of masculinity in order to be considered legitimate participants. The articulation of technical language is then a test of this legitimacy, and a defining trope of the hegemonic masculinity of the 'pro' as described by Alice Tomaz de Carvalho (2012) in perpetual tension with the 'serious', the subordinate masculinity. Technical literacy is thus conflated with expertise within audio technology domains, defining the assumed capabilities (and indeed responsibilities) of the professional recordist, and distinguishing them from the amateurs. Notable within this tension between the hegemonic and subordinate is also the significance of gear fetishism with respect to literacy or knowledge.

Gear fetishism and gear lust can be viewed as further means of establishing a hegemonic masculinity within discourse and thus objectifying other participants. An analysis of print media texts has demonstrated how this trope is recognised both internally and externally as a significant determining factor with respect to legitimacy (Théberge 1997: 111; White 2000; Mearns 2000; Annetts 2013), and thus as a

source of tension (Cornwall and Lindisfarne 1994). These print media archives are scripted (Akrich 1992: 208) in such a way as to fetishise specific technological artifacts that are believed to symbolise or represent knowledge, power and legitimacy, as noted by Bennett with respect to 'technoporn' (2012c: 124). The industry-wide fixation on newly produced artifacts is representative of this exclusive trope as Bennett has explored with respect to technological utopianism. In this context, she observes:

'Undoubtedly, technological utopianism in the Anglo American sound recording industries was – and still is to a large extent – rife, with organisations such as AES [Audio Engineering Society] and technology trade shows, such as NAMM [National Association of Music Merchants] and Sounds Expo regularly championing new technological developments. Additionally, online fora, such as Gearslut, promote new technologies to an excitable audiophile community via a busy network of technology-related threads, interspersed with feature Q&A sessions with recognised practitioners. Such organisations, trade shows and discussion sites have all contributed to a technology industry where, certainly over the last 30 years, new=good. ... Almost no recognition is given to technological precursors or vintage systems and is only acknowledged when mentioned in recordist interviews. The only exception to this is the magazine 'Tape Op', which – as the name suggests – gives more prominence to past and current analogue systems being used in today's recording workplace' (Bennett 2012a).

Bennett's observations are significant in that they shed light not only on the fixation with new audio technology products, but also on how this fixation informs perceptions of legitimacy and thus, I argue, hegemonic masculinity. In referencing the audio community participants, Bennett draws attention to the position of the audiophile (previously examined in Chapter Three) in relation to organisations, discussion forums and trade events, where the 'push-pull relationship that exists between industry and consumer' is identified (Heward 2009: 16). This is, I argue, representative of hegemonic and subordinate power mediation that is intrinsic to the audio technology domain whereby the the notion of the 'pro' recordist, the audiophile or 'recognised practitioner' (Bennett 2012a) is juxtaposed to that of the amateur within 'striated' and often hierarchical archives (Massumi in Deleuze and Guattari 2011: xiii). As I have previously suggested, therefore, the democratic potential of technological artifacts are undermined by an implicit institutional emphasis on consumption (Tomaz de Carvalho 2012) that discriminates between the normative and deviant participants.

The supposed exception of *Tape Op* that Bennett discusses is also worthy of investigation here, as it is arguable that the vintage systems and technological precursors cited are also subject to gear fetishism and thus to use/abuse in the mediation of social power and the social construction of hegemonic masculinities. Discussing the allure of vintage instruments, Théberge notes that 'the fetish of older musical instruments is essentially a nostalgic one. "Vintage" instruments are understood to give the player a form of direct sonic (and sometimes iconic) access to the past and, thereby, an almost magical ability to evoke the power of some past music' (1997: 120). Vintage instruments and technologies are prized by collectors, and their economic value alone affords an aura of legitimacy to those who possess them. More than this, however, it is the mythologies built around the technologies that engender their significance with regards to a hegemonic masculinity. As Théberge suggests, an 'iconic access to the past' serves to privilege those with both a literacy on the subject of vintage technology, as well as those who physically possess the artifacts (ibid.). Whilst the former is commonly enacted as a dominant feature of an archive's phallogocentric enunciative function, it is the latter that is worthy of further consideration. Of great significance here, then, is the related issue of accessibility with respect to potential spending power previously considered.

One's ability to participate and even enunciate is inevitably tied to one's disposable income, or more accurately, one's willingness to spend money on audio equipment (White 2000; Gilby 1999; Théberge 1997: 121). Thus it is arguable that the specific, aforementioned hegemonic masculinities are partially informed by this prerequisite, and are therefore at odds with those individuals who choose not to (or are unable to), quite literally, buy into the domain. Distinctions between discourse participants based on their perceived (or actual) financial capacity have also been addressed by Tomaz de Carvalho (2012), Sterne (2000) and Wernick (Wernick in Théberge 1997: 119), who collectively stress the importance of a participant's spending potential in the localised exchanges and mediations of power. The discourse analysis conducted thus far has observed specific instances in which economic capital has played a key role in informing participation and exclusion, but in the previous sections of this thesis, a thorough examination of the contributory factors has not been offered. In the following section, then, I explore the intersecting factors of social class, gendered divisions of labour, spending power, knowledge and gear fetishism in relation to the audio sector through the lens of masculinity theory. In doing so, it becomes apparent how these intersecting social factors

effectively define the normative and deviant participants of the audio domain, and how 'a variety of hegemonic representations win ideological consent' whilst 'alternative constructions are either beaten down, ridiculed or absorbed' (Beynon 2002: 17). Furthermore, I also investigate how 'versions of culturally praised hegemonic masculinities become part of the general consciousness' of audio technology discourse, 'even if they contrast with the more mundane everyday lives of most men' (ibid.). I pay attention to the 'essentialist language and imagery [that] typically works to privilege "masculine" discourses about the world (deemed objective, rational and unitary) over and above "feminine" ones (held to be subjective, irrational and fragmented) in ideological terms' (Beynon 2002: viii). The following thus engages with the concept of hegemonic masculinity as it is inflected in culturally (and domain) specific ways through an analysis of how it is shaped by the interdependent factors of social class, spending power, and essentialist discourse. I also investigate the theory of masculinity in 'crisis' here, where I argue against a number of scholars who have suggested that masculinity, in the singular sense, is deviating from a fixed, stable and unified form.

6.2 Masculinity and Class

The thesis thus far has shown how the discourse of audio engineering is largely centred around 'heroically masculine terms' that are used to depict sound engineers, to describe recording technology itself, and to characterise the overall domain as a masculine space (Marie Smith 2009: 88). I argued in Chapter Three that such an exclusive, phallogocentric discourse is drawn from nineteenth century notions of public and private that effectively characterised 'labour' as a masculine pursuit to be conducted outside of the home, and thus had the effect of rendering invisible those involved with domestic labour (largely women) (Douglas 2004; Heward 2009; Campbell 2003). It is necessary to explore, therefore, the significance of gendered labour in the establishment of hegemonic masculinities, and how factors such as class reflect deeply entrenched values with respect to the essentialist performance of the 'working man' and its associated cultural stereotypes.

John Beynon has argued that 'work is central to masculinity, providing money, power, a job or career, as well as the opportunity to develop and exercise skills, expertise and authority' (2002: 87). This emphasis on expertise and authority

can clearly be seen within the discourse of audio technology, where knowledge and technical literacy is articulated as a means of asserting dominance and thus perpetuating hegemonic masculinities. The gendering of labour is, I argue, central to the domain of audio technology, as exclusion is enabled by the performance of stereotypical masculine behaviours - or, 'doing masculinities', in the words of Morgan (1992: 47) - that simultaneously stress women's incompetence (Rodgers 2010a: 12; Marie Smith 2009: 93; Sandstrom 2000: 294). Audio engineering as a profession is then bound up with socially constructed perceptions of gendered vocations. Revisiting the print media archives of *Sound On Sound* and *Tape Op* here, I show how a gendered perception of labour and class intersect, informing both the discursive and physical exclusion of those classified as deviant or subordinate participants.

Tape Op magazine arguably embodies a very different hegemonic masculinity to that of *Sound On Sound*. Thus, the former's focus on DIY-oriented approaches to 'gear' and problem-solving ostensibly eschews industry orthodoxy, yet at the same time augments essentialist masculine cultural stereotypes of being 'handy' and 'practical' (Marie Smith 2009; Beynon 2002: 85). Although this appears to position *Tape Op* as a more accessible discourse in an economic sense, it is crucial to note that this is only the case for those willing and able to adopt the hegemonic masculine discourse of the archive itself: that of the DIY enthusiast. The discourse of *Tape Op* arguably valorises the labour inherent to audio engineering, albeit in a capacity that presents opportunities for the continued personal development of the recordist and often the subversion of well-established technical knowledge (Morrison 2000: 52). It is this emphasis on education and learning that distinguishes *Tape Op*, making it marginally more accessible than comparable texts by downplaying the financial impediment to participation and encouraging personal growth that resists the more pervasive institutional forms of gear fetishism and 'technoporn' (Bennett 2012c: 124). In contrast, the discourse of *Sound On Sound* emphasises one's spending power in addition to one's expertise in operating and understanding audio technology devices. This arguably leads to a shift with respect to what gear itself comes to represent; redefining devices of labour as fetishised phallogocentric commodities in a 'masculinist signifying economy' (Butler 1990: 18).

When considering how these audio technology discourses relate to gendered perceptions of labour and the associated factor of class, it is useful to investigate the trope of gear fetishism as informed by cultural theories of masculinity

and the 'working man' such as those of Beynon (2002) and Roper (1991). In discussing the nostalgia of factory labourers of the 1950s, Beynon has observed just how closely masculinity is associated with technological artifacts. Reflecting on this point, he explains:

'These men ... reminisced fondly about products like timing belts, welding equipment, landing gears and process equipment, goods they had produced and which were at the centre of their work, their emotional life and even their gender. Such products were landmarks in their career and they had nostalgic memories of a world of heavy production engineering ... infused with a strong masculine ethos' (Beynon 2002: 70).

It is my contention that contemporary audio technology discourse continues to contribute to a sense of gendered participation informed partially by this concept of the 'handy' male labourer (Beynon 2002: 85). The sustained masculine dominance of the audio domain continues to be rooted in a discourse of fetishised technology, biologically essentialist language and gender stereotypes as Tara Rodgers' seminal ethnography of self-identified female electronic musicians, *Pink Noises*, attests (Rodgers 2010a).

6.3 Container Technologies

Rodgers draws attention to 'technological forms and processes that are culturally coded as female' and explores how these are 'systematically devalued and controlled' (2010a: 12). Through an investigation into container technologies, that is, technological forms which are 'associated with metaphors for female organs of storage and supply' (ibid.). Rodgers demonstrates how artifacts are attributed meaning by domains and practices that are predominantly scripted as masculine. In this way, she argues, 'a passive (feminized) inscriptive surface [is] employed to reproduce the working of (male) culture' (ibid.). In contrast to the fetishisation of technological artifacts that are 'infused with a strong masculine ethos' (Beynon 2002: 70) then, container technologies are instead feminised and rendered passive and subordinate within the dominant discourse.

Central to this argument is the concept of 'loss', which, within the context of audio technology, is defined as 'the degradation in quality or clarity of recorded sound as it passes through the medium' (Rodgers 2010a: 13). A desirable medium

is thus 'transparent', lacking in tonal coloration, be it through the noise floor of a digital device or the iconic sound of magnetic tape saturation. Understanding that sound mediums are scripted as feminine, the avoidance of loss then presents opportunities for masculine authority and dominance through essentialist cultural stereotypes (Beynon 2002: 58). Within the context of the audio technology sector, the pervasive stereotype of masculine competence is exemplified by the work of Cogan and Clark who state: 'there were perhaps a dozen men who recorded virtually all the songs on the radio. They were explorers and pioneers, the audio equivalent of the first NASA astronauts' (2003: 11). By stressing the concept of recordists as pioneers or frontiersmen, Cogan and Clark effectively reconcile the concept of domination and violence with masculine authority. In adopting this analogy, Cogan and Clark are reproducing a discourse of oppression rooted in phallogocentric, imperialist practice.

Returning to the work of Rodgers, one can observe how systemic masculinity has become within the audio domain, in particular with respect to language and discourses of power and control. Rodgers explains:

'The (feminized) medium of sound reproduction constituted an interference with the purity of the [audio] signal. Hi-fi discourses advocated maximizing sound fidelity by guarding against loss and making the medium as transparent as possible ... A classic, masculinist technological fantasy is at work in this example: male attempts to appropriate the maternal function with technology typically exhibiting a conflicting, nostalgic investment in the figure of the mother, and an antagonism and desire to overcome it ... Male claims to creation are asserted through masterful control and/or erasure of this medium' (Rodgers 2010a: 13).

The metaphorical lack of women's visibility (and by extension their material absence) that is achieved by rendering a medium 'transparent' is thus a perpetuation of the nineteenth century public/private divide previously addressed, where a gendered division of labour had the effect of devaluing and rendering invisible (traditionally feminine) domestic work (Douglas 2004; Campbell 2003). In a contemporary context, the conflation of masculinity and technology in the audio field is at least partially responsible for 'constructing a view of the [audio technology] industry where women simply do not exist at all' (Marie Smith 2009: 92).

The techno-nostalgia and gear fetishism so clearly evident in Beynon's earlier description of male factory labourers is portrayed as being central to a sense

of masculine identity. Roper has similarly acknowledged the significance of gear fetishism in reinforcing perceptions of working class masculinity, suggesting that production managers of the 1950s performed 'a masculine stereotype bound up with the drama of production, technical competence and product fetishism' (1991: 207). Both Roper and Beynon suggest, however, that industrial modernisation 'destroyed this kind of distinctively 1950's masculinity' (Beynon 2002: 70), citing the loss of factory labourers and managers as informing a shift in masculine performance away from product fetishism. As my research has demonstrated, however, audio technology communities certainly invoke an analogous sense of masculinity that is bound up with 'gear', as evidenced within the associated print media discourses (Théberge 1997: 108). More than this, techno-nostalgia is equally apparent in contemporary discourse, as evidenced by the discussion of vintage instruments and artifacts (Théberge 1997: 120). In speculating upon the potential contemporary existence of gear or product fetishism, Beynon states that 'if "product fetishism" exists today, then it is to be found not in heavy industry (long since decimated), but in the technological innovation and e-commerce initiatives' (Beynon 2002: 70). This would seem to corroborate my own research findings in which technological innovation in the realm of IT and microprocessors has been cited as being central to the maintenance of the audio technology industry (Annetts 2013; Théberge 1997; Negus 1992).

6.4 Masculinity in Crisis

Megan Davies has argued that 'technology is a core domain of socially constructed masculinity and acts as a "boundary marker"' (2010), clearly delineating labour and spaces as gendered. She continues to suggest that 'it is undeniable that men customarily dominate the cultural settings in which technology is used, and that technology invariably takes on particular meanings that reflect masculine associations, leaving women potentially alienated from, or ambivalent towards, technology' (ibid.). The significance of a phallogocentric, masculine genderscript is notable here, particularly with respect to participation (Oudshoorn and Pinch 2005: 10). Armstrong's assessment of gendered classroom participation also draws attention to this script, by focussing on music technology composition exercises that are socially constructed as masculine. Commenting on the atmosphere of a mixed gender classroom, she has observed 'a distinct difference in the medium [boys]

preferred to use. ... When elements of “engineering” and hard mastery came into play during the computer-focused developmental stages, the girls seemed less inclined to interact with it’ (Armstrong, 2003). Here, the genderscript of technology can be seen to stress the culturally constructed masculine attributes of science and engineering, as previously discussed. Similar studies of classroom environments such as that of John Beynon (1993) have also recognised the social construction of technology as a male domain. With respect to the alienation of those failing to adopt the hegemonic enunciative function, Beyton has observed the following:

‘Girls were repeatedly harassed and brushed of the “male domain” of computers by groups of boys I termed “computer bullies” ... who constructed a macho identity based on their domination of keyboards and expertise. Computing became a ready resource for boys to construct and express a strong, masculine identity based on “superior” technological knowledge’ (Beynon 1993: 161).

All of the aforementioned studies are compelling evidence of the perpetuation of a genderscript that privileges the participation of those who adopt a dominant, hegemonic masculine performance rooted in knowledge appropriation and oppressive behaviour. More than this, the social construction of technological artifacts as intrinsically masculine informs the perpetuation of gear fetishism due to their mutually reaffirming properties (Rodgers 2010a: 15). The loss of what Beynon describes as a ‘distinctively 1950’s masculinity’ (Beynon 2002: 70), then, and in particular its associated scripts of gear fetishism and technical literacy, can be said to remain prevalent within the context of technology, and thus stands in stark contrast to what masculinity researchers discuss as its contemporary ‘crisis’.

The notion of masculinity in ‘crisis’ has been explored by a number of scholars, notably Mangan (2000), Kegan Gardiner (2002), Beynon (2002) Segal (2000), Edwards (1997) and Robinson (2000), all of whom point to a series of sociocultural and historical factors that appear to essentially challenge the concept of a stable, fixed and unified masculinity. ‘Crisis’, then, whether material or largely discursive, can be defined as the challenges to the perceived central tenets of a socially acceptable masculine performance, such as patriarchy (and by extension phallogocentrism) and its components, such as ‘breadwinning’ (the male as wage-earner), physical strength and the associated gendered labour markets. Following the work of Robinson (2000), I argue that the very notion of a masculinity crisis is ill considered, in particular as my research has demonstrated that audio

technology communities continue to reinscribe both hegemonic and subordinate masculinities as features of contemporary discourse. This is not to suggest, however, that the concept is not useful in assessing fundamental shifts in masculine scripts and performance that fields such as the audio technology industry have undergone. I rather argue against the notion that specific periods of cultural and historical upheaval are solely responsible for the displacement of some essential masculine identity or performance. As Morgan has suggested: 'gender and masculinity may be understood as part of a presentation of self, something which is negotiated, implicitly or explicitly over a whole range of situations' (1992: 47).

In the first instance, the idea of a masculinity crisis must be regarded with some suspicion, as Robinson (2000) recognises. The very idea of a crisis carries heavy overtones of the men's rights movement where those involved are 'busy establishing a litany of "wrongs" in order to then claim "rights"'. The notion of crisis, therefore, is nothing less than a strategy by men to reoccupy the central stage and regain patriarchal status and power' (Beynon 2002: 94). Paraphrasing the work of Segal (2000), Beynon draws further attention to arguments against the notion of crisis, suggesting that the links between 'heterosexuality, men and power' remain firmly in place. He continues to state that 'men remain the dominant and threatening sex; talks of a crisis is a way of sidelining more important issues like poverty, racism and structural inequalities' (Beynon 2002: 93). This is a sentiment shared by Segal who has commented that 'once you bring class back into [the study of crisis] you see that many of these problems have been around for a long time, but were understood differently' (2000: 4). It is this final point that is most relevant to my original research, as I argue that class-based masculinities are essential to an understanding of the contemporary audio technology industry, and through their analysis, one can dispel the notion of a masculinity crisis. Following a social constructivist methodology and using Foucauldian discourse analysis, one can observe the continued, interdependent inscription of masculinity and gear fetishism onto contemporary discourse (Tomaz de Carvalho 2012). I argue that central to the perpetuation of these tropes is the importance of class-based masculine values that stress product ownership (Théberge 1997: 108; Marx 1887 [2015]) and shop-talk (Horning 2004), as well as the material and symbolic ownership and deconstruction of technological devices to attain technical literacy and enunciative credibility.

In discussing the perceived masculinity crisis with respect to class and changing labour markets, Beynon observes that 'the shift from manufacturing to

servicing, and from industrialization to electronic technology, was immensely damaging for working class men', as these were in fact 'benchmarks of working class masculinity' (Beynon 2002: 107). Taking this statement as a point of departure, it is useful to investigate further the theories of masculinity crisis and assess how these relate to class within the audio technology sector. With reference to the British fashion industry, Frank Mort (1996) argues that the early 1950s were pivotal for masculinity, as class based performances began to be usurped by style-based masculinities with an emphasis on consumerism (see also Nixon 1996 and Edwards 1997 for further information on fashion, a discussion of which falls outside the scope of this work). Mort's approach might be usefully extended to the arena of audio technology, as the disjuncture presented between class and style is effectively mirrored in contemporary print media such as *Tape Op* and *Sound On Sound*. As I have suggested in Chapter Five, *Sound On Sound* effectively promotes an exclusive, hegemonic, class-based masculinity concerned with style (Baym 2014), in that product fetishism is cited as being central to 'legitimate' participation. This is reinforced by *Sound On Sound's* emphasis on participants' financial investments: 'SOS readers are serious about recording ... and this is emphatically borne out by what [they] spent on *new* hardware/software in the past 12 months' (Gilby 1999). Whilst Mort (1996), Beynon (2002) and Roper (1991) have all suggested that class based masculinities gave way in the 1950s, I argue that is most certainly not the case with respect to audio technology culture, where both *Sound On Sound* and *Tape Op* perpetuate a model of participation rooted in working and middle class conceptions of competence bound up with technical understanding, deconstruction and commodities (Milner 2009; Morton 2004; Horning 2004; Thompson 2002). Thus, whilst Beynon may argue that 'American men are in crisis primarily because they have been rendered "feminized" consumers rather than "manly" producers' (Beynon 2002: 94), I argue that 'production' in the sense of knowledge and power production as addressed in the earlier sections, remains central to audio technology discourse.

Tim Edwards' work, *Men in the Mirror* (1997), has also drawn attention to commodified forms of masculinity, in particular with respect to print media. Edwards argues that print media is responsible for the 'constant reconstruction of masculinity through consumption' (1997: 82) in which masculinities are consistently performed and reconstituted within a marketplace. On this point, Edwards continues to state that 'the reconstruction of masculinity invoked in the concepts, representations and

practices of consumerism in the 1980s demonstrate very few signs of post-feminist consciousness and many more indications of intensely sexualised and phallogocentric muscularity' (1997: 51). This corroborates my claim that the concept of masculinity crisis fails to account for the continued existence of dominant, masculine, print media discourses and their phallogocentric core. In assessing the role of print media in masculinity construction, Beynon notes that 'a magazine's front cover is about the construction and preservation of a genre identity and is obviously the chief selling point, indicative of how it wishes to present its take on the world and differentiate itself from its competitors' (2002: 126). Paul Théberge has also identified magazine covers as a key site of gender inscription, where it becomes possible to witness the commodified consumption of masculinities that Edwards has identified. Commenting on the near total absence of masculine-deviant representation within audio technology print media, specifically on magazine covers, Théberge states:

'With technology receiving top billing instead, all social ills disappear into the glossy surface of the technical objects themselves. Magazine editors and marketing representatives for the manufacturers generally feel that photographs emphasizing "hardware" and copy dealing with technical specifications are gender-neutral. Of course, feminists have long held that, because women's access to technical training and discourse is limited, scientific and technical jargon often effectively alienate female readers. ... The advertising in high technology magazines can sometimes be more deeply disturbing, however, because of the cultural overtones occasionally brought into play by the gendering of technology' (Théberge 1997: 123-124).

The implications for the perpetuation of gear fetishism and 'technoporn' (Bennett 2012c: 124) are obvious in the statement above, where one can also observe the conflation of technical products with masculinity in a commodified labour market. The very concept of a masculinity crisis with respect to audio technology therefore seems implausible. Instead, the discourse of audio technology can be seen to have integrated consumption into a new masculine performance, neutralising and absorbing the supposed 'feminising' consumer behaviour (Beynon 2002: viii). Marie Smith observes that 'in the case where skills and characteristics perceived as traditionally feminine are required, these are discursively re-positioned as gender neutral, which effectively prevents any feminisation of the occupation' (2009: 24). The reconciliation of consumption, the style-based, middle-class masculinity with a working class performance, is thus an example of what Cornwall and Lindisfarne

have termed a 'cultural borrowing' (1994: 12), resulting in the production of new masculinity configurations.

Judith Kegan Gardiner has stated that 'talk of a masculinity crisis frequently implicates feminism' (2002: 6), a statement that draws one's attention to what both Marie Smith (2009: 24) and Beynon describe as the 'feminisation of employment' (2002: 161), and thus to the perceived destabilisation of the masculine 'breadwinner' performance. The advancing rates of women's participation within advanced economical labour markets have also been labelled as being responsible for a masculinity crisis, as Beynon attests: 'the causes of the crisis remain vague and have been variously attributed to feminism, changes to the labour market, economic restructuring, globalization and the global economy, technological innovation, the gay movement and consumerism' (Beynon 2002: 95). As I have previously suggested, the concept of a masculinity crisis therefore remains wholly unconvincing, in particular with respect to the audio technology industry. That being said, Judith Kegan Gardiner presents a definition of crisis that explores the intersections of feminism and masculinity studies, or what she terms 'the asymmetrical interdependencies of masculinity and feminism as cultural formations and academic subjects' (Kegan Gardiner 2002: 10), that serves as a useful tool in understanding the shortcomings of deterministic analyses of gender performance. She argues that both masculinity and feminism are 'myths of power: masculinity of the natural congruence of male self with social privilege and feminism of perfectly self-regulating collectivity' (Kegan Gardiner 2002: 11). A crisis, she concludes, is thus either 'the loss of the past [masculinity] or the deferral of the future ideal [feminism]' (ibid.). In exploring the intersections of feminist theory scholars and masculinity studies academics, she notes that there exists a:

'consensus that masculinity is not monolithic, not one static thing, but the confluence of multiple processes and relationships with variable results for differing individuals, groups, institutions, and societies. Although dominant or hegemonic forms of masculinity work constantly to maintain an appearance of permanence, stability, and naturalness, the numerous masculinities in every society are contingent, fluid, socially and historically constructed, changeable and constantly changing, variously institutionalized, and recreated through media representations and individual and collective performances' (Kegan Gardiner 2002: 11).

Therefore, rather than referring to a monolithic, unified masculinity crisis, it is perhaps more useful to consider the notion of more localised, individual crises (both actual and discursive) that differentially affect a range of masculine performances (Beynon 2002: 96). Taking this into consideration with respect to the audio technology communities surveyed thus far, a crisis would perhaps be a welcome change, as Robinson (2000) suggests, resulting in the rethinking of hegemonic genderscripts and a wider variety of performances from a more diverse group of participants and contributors. It is therefore useful to investigate opportunities for rupture with respect to masculinity, and in particular its inscription onto technological artifacts, institutions and physical spaces, as means of instilling crisis. The following section analyses possibilities for rupture with respect to the audio technology domain, paying specific attention to Women's Audio Mission as both a material and discursive site of re-inscription, that actively challenges the contemporary, hegemonic masculine performances investigated up to this point.

6.5 Women's Audio Mission

The following section critically investigates the audio technology institution, Women's Audio Mission (WAM) as a source of potential rupture and reinscription in what I argue to be a homogenous and male dominated labour and consumer marketplace. Returning full circle to the first chapter's engagement with social construction of technology studies (SCOTS), I investigate how WAM effectively reinscribes a *site-specific* (and thus segregated) audio community, encouraging equality and diversity through the subversion of hegemonic masculine discourse and its associated epistemes (Foucault 1997). Whilst I have previously demonstrated the ways in which masculine authority is constructed by implementing SCOTS devices, these very same tools offers possibilities for investigating the rupture of dominant practices within striated institutions. Central to this practice is the process of rendering visible those marginalised, excluded and oppressed participants to whom I have previously alluded, if not wholly engaged with. Therefore, whilst I have sought throughout the thesis to draw attention to masculine-deviant voices within the context of audio technology (notably via scholarship and academia), the following section engages with them in a conscious attempt to present possibilities for alteriority within contemporary discourse and practice.

Tara Rodgers' seminal work, *Pink Noises* (2010a), opens by charting the many industrious and technologically focussed efforts of her family, citing specifically the influence of her mother and other female relatives. In doing so, Rodgers effectively engages in a conscious attempt to 'disentangle ... potent assumptions and open possibilities for imagining different relationships of sound, gender, and technology differently. It endeavours a feminist intervention in historiography' (Rodgers 2010a: 2) My work within this section follows Rodgers' point, and, attempts to tangibly expose what I term a reinscription of accessibility and equality through the examination of women's (as an example of masculine-deviant) voices. Before elaborating on these points, it is first necessary to contextualise what I see as a key site of reinscription, that of Women's Audio Mission. This initiative is, according to their website:

'a San Francisco-based 501(c)3 nonprofit organization that is dedicated to the advancement of women in music production and the recording arts, a field in which women are critically under-represented (less than 5%). **WAM is changing the face of sound by providing women and girls with access to and training in music production and the techniques and technology used in the recording arts.** [emphasis by author] In an era that is increasingly dependent on technology, WAM believes that women's participation in this field will expand the voice of music and media, ensuring that women's ideas, interests, and points of view are conveyed throughout our culture and society' (Women's Audio Mission, 2012a).

Of primary consideration when investigating Women's Audio Mission, is its status as a non-profit organisation. My research has explored the construction of the technology industry on what Rodgers calls 'a music culture that privileges planned obsolescence' (Rodgers 2010a: 6). This is indicative not only the significance of gear fetishism (Théberge 1997: 108, 120, 136), but also of the domain's primary function as a profit centred marketplace. In its capacity as a non-profit organisation then, WAM effectively refutes the dominant industry script and thus espouses a position as the deviant or subordinate participant. From a SCOTS perspective, this practice is an effective extension of what Akrich and Latour position as the 'antiprogram', the reprogramming of objects to facilitate behaviours and practices outside of an object's immediate script (Akrich and Latour 1992: 261). Whilst Akrich and Latour's theory is more concerned with objects over institutions, this framework is useful nonetheless in examining possibilities for rupture and reinscription. As Oudshoorn and Pinch have suggested, users have the potential to 'underwrite or

reject and renegotiate' a technology's intended design, enacting a reinscription of artifacts, persons and institutions (Oudshoorn and Pinch 2005: 11). WAM therefore adheres to dominant industry behaviours by drawing upon the domain's epistemes, but in establishing itself as a non-profit organisation, makes visible an alteriority in specific practices. This effectively reinscribes the localised community of Women's Audio Mission, allowing for new discursive practices to emerge within its participants. Regarding its participants, the WAM website positions itself as being 'for anyone who is woman-identified (transgender or cisgender). Though our work centers on the advancement of women in audio and music production, our membership and programs are open to non-binary and gender non-conforming folks as well. We also offer many events and workshops that include our male allies' (Women's Audio Mission, 2012e).

It would be presumptuous to assume that WAM is effectively attempting to alter dominant discursive practices that extend beyond the information outlined in the texts above. It is therefore necessary to more closely examine the Women's Audio Mission diversity statement as well as the voices of those involved in order to assess how the institution views its own aims and practices⁹:

'Women's Audio Mission believes that diversity in every respect is essential to the excellence of our programs and the success of our mission. It is a core value. Diversity ensures equity in education and in the workplace. Because WAM's mission and programs serve individuals from all different backgrounds and from all over the world, WAM continually seeks to achieve diversity among its members, students, volunteers, board of directors and employees. WAM is committed to making sure that people from all backgrounds, regardless of differences such as race, ethnicity, gender, age, religion, language, abilities/disabilities, sexual orientation, gender identity, socioeconomic status, geographic region, and more, perceive our organization and programs as accessible, welcoming, supportive and inclusive. WAM is especially dedicated to identifying and removing any barriers to serving, supporting, retaining and advancing persons from historically underrepresented populations' (Women's Audio Mission 2012b).

⁹ Representatives from Women's Audio Mission declined to be interviewed for this project. Attention should also be drawn to the following passage on their website: 'We are happy to hear of your interest in advancing women in audio. Unfortunately, we are inundated with requests for help on student projects and are just not able to accommodate them all. There are a large number of interviews with WAM in our Press section that express that statistics and views of WAM and would be useful for these projects. We also post a vast amount of information on our Facebook and Twitter sites' (Women's Audio Mission 2012e). On this point, it should be duly noted that WAM are often called upon to discuss their relative imperceptibility as opposed to their practice as recordists.

The statement above draws attention not only to the significant work being done to diversify and equalise access to audio technology, but also to the overwhelming homogeneity of the domain in its contemporary configuration. The characterisation of audio technology communities as white-middle-class boys clubs has been explored in previous chapters, but is essential to an understanding of how Women's Audio Mission distinguishes itself. As Tara Rodgers has noted, 'at stake, on one level, are questions of who has access to tools and opportunities for creative expression' (2010a: 5). If only through the very existence of a diversity statement in the first instance, then, WAM is effectively reinscribing a localised audio technology community to work against the 'patrilineal history of electronic music production [that] is normative, [with] ideologies of sound reproduction [that] circulate unmarked for a particular politics of gender' (Rodgers 2010a: 15). It is important, therefore, to consider in which capacities WAM actively functions by also outlining the ways in which it seeks to engage with a more diverse demographic in line with this diversity statement.

Women's Audio Mission, in its current formation, consists of a dedicated commercial recording studio staffed exclusively by women engineers, as well as an online training programme known as Soundchannel. With both a physical and online presence, WAM forms an effective foundation from which it can broaden its community, as well as extend itself into *public* industry-specific events and locations. In doing so, WAM is able to establish workshops and programmes that involve the aforementioned, marginalised demographics (women) and thus destabilise the dominant, masculine model of audio technology domain participation (overwhelmingly male) through their very presence. In discussing the formation of Women's Audio Mission in 2003, founder Terri Winston outlines how the project began, as well as its relationship to wider industry homogeneity:

'I was a professor at City College of San Francisco and I was tasked with looking at why there were so few women in the classes [in the audio technology department]. What I found is they were actually doing pretty well at 12%. I managed to get the enrollment of women in that program to around 47%, and it teetered around 53% at one point. A lot of people wanted to know how I did it so instead of going around individually, I decided to start Women's Audio Mission so we would have a place where all of those practices were available and shared' (Winston in Sharkey 2014).

From this we can observe that Women's Audio Mission was primarily established in response to the comparatively low enrollment figures of women in audio technology higher education. However, returning to the work of Beynon (1993: 161) and Armstrong (2003), as well as that of Susan Douglas (2004: 88), Marcia Citron (1990: 105-106) and Kelly Heward (2009: 29) examined in Chapter Three, we can see that issues surrounding the socialisation of women with respect to both music and technology occur at an even earlier age, and are deeply entrenched within popular discourse. The audio domain remains exclusive and phallogocentric in part as a consequence of nineteenth century genderscripts that arguably alienated women based on the gendering of mass culture as woman (Huysen 1986: 47-48). The audio domain was thus accessible (and remains so) only to those who expressed a hegemonic masculine performance of 'control and technical competence' (Ellen van Oost 2005: 207). In order to remedy the exclusion perpetuated within contemporary discourse and within specific institutions, Terri Winston points to the significance of early socialisation and women's exposure to audio technology:

'I was raised in a technical family, my father's an engineer, and I've been in labs my whole life, so I was very comfortable with technology at a very young age. I don't think girls generally have those opportunities, it's almost like they're pushed away from [technology] a little bit. That's the way our society is socialized. ... when you put those girls in a room with technology they take to it very naturally, they're very good at it, so to me it's just an exposure thing. We've got them building speakers out of plastic cups, they love this stuff. I'm sure you've heard well "[girls] just don't like it." That wasn't true for me and I just didn't want to accept that I was the only female that liked this stuff' (Winston in Sharkey 2014).

The thoughts and experiences of Winston, here, mirror those of other women recordists who similarly point to the significance of an early exposure to technology in shaping their contemporary interests. Beth Coleman states that 'with gear, whether it's guitars or computers, one of the primary ways people learn ... is [that] you're just around it' (Coleman, Beth in Rodgers 2010a: 88). Relating her own experiences of early exposure to audio equipment, Jessica Rylan recalls: 'My grandfather was an electrical engineer, and he and my father did ham radio ... we made a radio one time' (Rylan, Jessica in Rodgers 2010a: 141). In a similar vein, Tara Rodgers has observed: 'I often attribute my facility with electronic music to my father's interests and support ... he shared with me his ... knowledge about hi-fi

systems and computers' (Rodgers 2010a: 1). These statements, when taken collectively, not only shed light on the significance of an exposure to technology, but also on this very same technology's exclusive, phallogocentric genderscript due to the critical involvement of a patriarch, and his ability, or more significantly his *decision*, to bestow knowledge. Winston, Rodgers and Rylan all draw attention to the 'patrilineal' descent of knowledge with respect to audio technology (Rodgers 2010a: 14), substantiating the evidence provided thus far that there exists an exclusive genderscript that privileges masculine authority and control. Just as knowledge is bestowed, then, it is also protected, and without relevant exposure, it becomes increasingly difficult to become socialised into the audio technology domain as Rodgers herself notes:

'I found that the spaces where knowledge circulated - primarily music stores and online discussion forums - were often populated by men who boasted about technical knowledge and were unhelpful to newcomers in the field. Many men were supportive, but electronic music cultures overall seemed to discourage or deny women's participation. This was made clear by the lack of substantive coverage of women in electronic music magazines and history books' (Rodgers 2010a: 2-3).

This final point on women's coverage is worth unpacking here, particularly with respect to the concepts of 'representing' and 'enunciation' previously discussed (Foucault 1997: 25, 181-182).

Historically, within the context of the audio technology domain, notable female participants were limited to an engagement with electronic music *performance*, as this stressed the genderscript of feminine mass culture (Citron 1990: 105-106). Any greater involvement with technology has historically remained within the realm of the masculine, as this and previous chapters have demonstrated. In discussing a contemporary *Washington Post* commentary on Clara Rockmore's debut Theremin performance, Rodgers draws attention to the phallogocentric discourse intrinsic to the audio domain. She writes: 'The *Post*'s commentary implies that [Rockmore] encroached on a phallic domain of virtuosity and technical mastery - reaching for the "vertical rod," "penetrating" the area' (Rodgers 2010a: 9). The intrinsic genderscript of audio technology can clearly be seen here, whereby Rockmore's exceptional achievements are re-inscribed and re-appropriated as masculine.

This solidification of masculine technical competence remains visible in contemporary discourse, as one is only able to represent and enunciate by adopting a hegemonic masculine performance. As a consequence, power remains inextricable from masculinity, maintaining the strata that perpetuate exclusivity and the patrilineal control of knowledge access outlined above. Rodgers encapsulates the significance of a masculine monopoly on speech and knowledge by suggesting that 'the question of who is counted in electronic music [and thus, more broadly, audio technology] historiography is inevitably informed by the politics of social and professional networks, and by limited definitions and standards of achievement' (Rodgers 2010a: 15). Returning to the *Washington Post's* reception of Clara Rockmore, then, we can observe how Rockmore's achievements were re-positioned and understood by recordists as masculine achievements, reinforcing not only a hierarchy of competence, but also one of perceived gender identity.

Speaking of her own experiences within the audio domain, Jenny Sparks, WAM Board President & IBM Sales Executive has observed how a gendered hierarchy of competence and participation also influenced her own career path:

'I knew that I had to be better ... I couldn't just be as good as the guys, I had to be better ... The pioneers that all broke through were really exceptional in what they did so it was really important to train, from a young age ... the right way. There wasn't that room for experiment [sic] because when you showed up ... you had to be really good. There was no grey area' (Sparks, Jenny in Buron 2013).

Sparks' observations point to the imbalance with respect to expectations of audio domain participants, in particular when one considers the masculine monopoly on knowledge that effectively perpetuates such an imbalance. Returning one's attention to the practice of Women's Audio Mission here, it becomes possible to witness how its programmes' attempt to facilitate broader access to knowledge within marginalised groups and thus reinscribe the audio domain as a more inclusive space. Most notably, this can be seen to occur through what Winston refers to as an attempt 'to recreate what I had and why things worked out for me' (Winston Terri in Buron 2013). In the absence of widespread knowledge accessibility, a key significance of WAM is its attempt to create both physical and online spaces that 'enthusiastically organize women and girls through community-oriented educational projects' (Rodgers 2010a: 17).

In its current configuration, WAM is extending beyond its initial higher education target demographic, and is effectively engaging with a more diverse range of participants. Notable within WAM's workshops is Girls on the Mic, 'WAM's youth program, which focuses on cultivating the next generation of women music recording artists and engineers [reaching] over 600 middle and high school girls a year' (Women's Audio Mission 2012a). This tackles head-on, normalised conceptions of audio technology participation that require 'at least the acquisition of technology, of knowledge and the delimitation of some space at home' (Tomaz de Carvalho 2012). Women's Audio Mission subverts these supposed prerequisites by offering 'free audio engineering and recording arts classes to women and low-income girls' (Laissle 2014). In doing so, WAM also invalidates the dominant phallogocentric discourse by emphasising free education over gear fetishism and consumption. This effectively renegotiates what Beth Coleman has referred to as 'the basic intimidation, being afraid to touch something or to find information' (Coleman, Beth in Rodgers 2010a: 89). Describing the programmes on offer, April Laissle continues: 'twice a week, six middle school girls come to WAM's studio to work on several small projects to get a feel for the recording arts. They create podcasts, record music and engineer the sound for cartoons. Winston says that by the end of the program, nearly 90 percent of the students say they want to pursue careers in science and technology' (Laissle 2014). The success of this endeavour has been borne out in a recent *Electronic Musician* publication that states: 'currently, WAM has more demand for training than they can currently meet, so they are raising money to offer more free training classes so they can reach an additional 150-200 girls and young women they haven't been able to serve this year' (Electronic Musician 2014).

By focussing its resources on educating young women, WAM effectively reinscribes its local community as a more inclusive space by subverting the dominant audio technology demographic of white-middle-class males (Oudshoorn and Pinch 2005: 11). More than this, WAM establishes a space that exists outside of the dominant model, whilst still drawing upon its relevant epistemes (Foucault 1997). It must certainly be acknowledged, however, that highly gendered self-segregation also poses considerable issues with respect to the socialisation of women with regards to the wider audio domain. In particular, the segregation of women arguably poses difficulties when preparing them for practice in a largely male dominated industry. This is, however, due to the omnipresence of a

phallogocentric means of enunciation as a component of audio technology discourse. Thus, it is arguable that regardless of its self-imposed isolation (with respect to its physical training programmes at least), WAM challenges the dominant genderscript and, through education, reinscribes the discourse of its pupils. This is a significant first step in challenging what this thesis has demonstrated as being an exclusive discourse on audio technology. It is also essential that one recognise WAM's studio as being a commercial facility, and as such, allows its pupils to gain valuable experience with many clients (regardless of their perceived or actual gender identity) and thus to solidify their skills through unmediated, real-world conditions. A further pertinent question with respect to self-segregation concerns the necessity of training women recordists separately. A comparison with the influential work of Paula Wolfe here, serves to highlight the significance of creating dedicated spaces for women to engage with audio technology. On this point, Wolfe discusses the persistent masculine genderscript of audio technology artifacts as well as studio space and overall discourse.

Just as Women's Audio Mission has the potential to reinscribe more localised, and often closed, communities, Wolfe acknowledges that the massification of audio tools may enable what she terms creativity in total solitude. On this topic she writes:

'I am not claiming that creativity, enacted in isolation, is a characteristic gendered female ... However, the acknowledgement that a woman's confidence in her technical abilities may be significantly influenced by the male dominated context of the commercial studio ... strengthens the argument for a woman to develop confidence in this way. The creative retreat is awarded further pertinence when set against the dual impact of the marginalised status of women working in male dominated genres ... the particular significance for the women studied here is that it has allowed those who have chosen to transfer their work to a commercial studio, to circumnavigate potential intimidation' (Wolfe 2012).

She continues to suggest that:

'Taking control of one's sound, in a studio of one's own, may only provide a temporary, albeit powerful, "escape" for a woman artist from the constraining perceptions imposed by her "setting". ... I am not suggesting that women who may not be involved in the production of their work are not still making significant strides. What I argue, rather, is that the steady rise in self-production practices amongst women not only points to artistic and career potential for the individual but may

also serve to address an inherited gender imbalance in the field' (Wolfe 2012).

Here, Wolfe points to the public/private divide that is maintained within the audio technology domain. It is suggested that a personalised recording space within the home (women's traditionally scripted arena), whilst reinforcing normalised genderscripts, nonetheless facilitates greater accessibility to artifacts and thus knowledge through association. As much as WAM is attempting to socialise women (and those who identify as non-masculine) around technology at an earlier age by creating dedicated safe, albeit self-segregated, spaces, Wolfe is suggesting that by embracing the nineteenth century notion of domestic isolation, *private* space can be effectively harnessed to similarly allow for this socialisation to occur. Writing on this concept of audio technology and the private sphere, Théberge has observed the following: 'The home has been the traditional site of female music-making, but as the instrument manufacturers and the magazines have turned their attention toward building a "home studio," there has been a noticeable lack of female (or family) participation in this project' (1997: 125). This lack of female participation is, Théberge argues, rooted in the marketing of technology that consistently privileges the masculine (1997: 175). It is necessary to point out here, that Théberge himself is unable to escape the dominant phallogocentric order, as can be seen by his relativisation of the woman with family. Théberge explicitly creates *unnecessary* links between the concepts of woman and family, and in doing so, not only are these concepts equated, but also thought to exist only in relation to one another.

When attempting to reconcile the texts of Wolfe and Théberge (as well as the practice of WAM) then, one's attention is immediately drawn to the question of *visibility*, and thus also representation and enunciation. Considering what both Théberge and Rodgers have argued to be a fundamental lack of women's involvement (ibid.) or appropriate role models (Rodgers 2010a: 2-3), I argue that those who fail to enunciate using the dominant phallogocentric script are rendered invisible. More than this, they are objectified following the work of Nussbaum outlined in Chapter Five (1995: 257). The very absence of women from the public sphere of the audio domain arguably perpetuates issues concerning accessibility, as there are few opportunities, or relevant demographics, to challenge and then reinscribe the enunciative function and allow for alternative performances. In contrast to this view, however, Wolfe brings into question whether or not isolation

and exclusion from the communities of audio production should necessarily be seen as being to women's detriment. She points to what she terms a:

“Powerful arena” in response to what can be described as an exclusion from the field of music production. The state of isolation experienced is expressed as being imbued with positive, rather than negative, connotations and the private space, the home studio, is rendered a site, not of marginality, but rather one of creativity and subsequent empowerment’ (Wolfe 2012).

Here, Wolfe is effectively subverting the negative perceptions of exclusivity presented thus far. In previous chapters I have examined how men essentially reappropriated and reinscribed audio technologies in order to stress traditionally held values of masculine competence and technical ingenuity, and in doing so, reclaimed domestic spaces which were ‘gendered as masculine’ (Keightley 1996: 150). The practice Wolfe encourages might therefore be seen as a reaction against (and a reclamation of) wrongly attributed, but nonetheless designated (via phallogocentrism), domestic territory¹⁰. She further states that a ‘connection might be seen here between the learning preferences of young female students and female artists who, with an artistic vision in place that they want to execute, are motivated to “take the time to learn this stuff”, away from mixed gender environments where potential problems can still be encountered’ (Wolfe 2012).

The problematic nature of mixed gender environments is central to an understanding of not only the generalised audio domain, but also Women’s Audio Mission, and its decision to cater to an almost exclusively female audience using dedicated spaces. It is useful, therefore, to turn our attention to the audio domain at large, where mixed gender interactions continue to perpetuate an exclusive model of participation.

Discussing her own implementation of audio workshops, Rekha Malhotra states that ‘all I need is one guy in the workshop, and fifteen women, and he’s up front and center!’ (Malhotra, Rekha in Rodgers 2010a: 176-177). Malhotra continues by referring to an introductory DJ workshop she ran for women, whose audience consisted primarily of men, many of whom, when asked, admitted they were already DJs: ‘I really felt like [the men’s presence] was more about testing [women’s] knowledge than gaining anything. And I felt I made it clear there when I said: ‘Oh,

¹⁰ The work of many pioneering women musicians has been facilitated precisely through the adoption or re-appropriation of domestic studio space, notably Kate Bush and Imogen Heap.

you just wanna know if we know what the fuck we're talking about' (ibid.). Of significance, here, is how the male participants contested the articulation of knowledge through their physical presence alone. Considering the work of Wolfe and WAM here, then, the creation of dedicated female spaces can be seen to subvert this initial impediment to women's participation as, at the very least, women's authority is lent legitimacy and represented. The significance of a masculine conception (and articulation) of knowledge has also been recognised as occurring in classroom environments by Pamela Z [Pamela Ruth Brooks]. She states: 'I've taken these classes and all the men gather around and they won't let you touch anything, or they make you feel stupid ... they can't *not* know technical stuff, and if they don't it's so embarrassing for them' (Z, Pamela in Rodgers 2010a: 225). The necessity of technical mastery is borne out here, in that one's masculinity is constantly under scrutiny and brought into question if the hegemonic genderscript is compromised somehow. A failure to know or act 'correctly' is met with exclusion or at the very least, derision. Such practices have been acknowledged by Kelley Bevin, who draws attention to the heteronormative myth of masculine sexual dominance and feminine passivity, as reflected in the sexualisation of women's knowledge in the following passage:

'Kristin does some pretty amazing work in MAX/MSP and I thought that came through in our talk ... after, [following a technical mishap not of their own doing] in the question-and-answer, some guy was like, I see California girls like to get fucked by their technology! His meaning and tone indicated that we were inept with our gear, and that we enjoyed being inept' (Bevin, Kelley in Rodgers 2010a: 241).

The overt sexualisation of women participants, here, is demonstrative of the power (in this instance sexual power) that knowledge attributes to a masculine performance over and above other marginalised groups. Whilst this may be considered a somewhat extreme example, the importance of knowledge to masculine signification within the audio domain has also been recognised as occurring in a less overt capacity.

Discussing their recent attendance at an audio conference, American electroclash group *Le Tigre* drew attention to the articulation of knowledge in relation to gear fetishism: 'A while ago, [we] went to this panel discussion ... it was four or five guys, all white, all in their early thirties ... but what was more striking, was that what they had to say was so homogenous. It was pseudo-theoretical stuff

... it was really fetishized' (Le Tigre in Rodgers 2010a: 249). This example not only draws attention to knowledge as an impediment to participation, but also to the homogenous demographic of the audio domain itself. On this very issue, Maggi Payne has observed: 'When I go to the Audio Engineering Society meetings - and that's just a small facet of it - but still, I'm seeing one or two women in a room of fifty people, and there are very few people of color' (Payne, Maggi in Rodgers 2010a: 71). The 'intersectionality' (Crenshaw 1989) of race and gender has also been noted by Erickson in relation to audio communities. In the following example, he observes the marginalisation of any group other than the white middle-class male, and more than this, deconstructs how his own conformity to this hegemonic masculine performance, lends himself credibility in the absence of any 'legitimate' domain awareness:

'Working at the intersection of music, technology, and policy means reckoning with the fact that each of these three arenas carries its own ongoing battles with sexism and racism. What this means for me as a white, college-educated man is my opinions are immediately given an assumed legitimacy in many forums. I can opine about technological issues in music and policy and no one will patronizingly ask me whether I know how to code ... I may not be able to oversimplify complex dynamics, but at least I *look* like an "expert."' (Erickson 2015).

Here, Erickson highlights the highly regulated hegemonic masculine genderscript that characterises the audio domain. His masculine performance, purposeful or not, grants him legitimacy and credibility. We must consider, however, that whenever there exists a normalised conception of a user or participant, then there are necessarily also deviants, all of whom are effectively excluded. The ease with which Erickson is able to integrate himself and 'acquire the domain' are thus, at the very least, demonstrative of the often insurmountable barriers that face marginalised demographics (Thompson and McIntyre 2013).

The lack of representation outside of the dominant, white, middle-class, male model is one of the key issues of accessibility that Women's Audio Mission attempts to address, as evidenced by its diversity statement (as previously discussed), as well as its Soundchannel training programme. Soundchannel is an online programme whose aim is 'to make high quality, college-level training accessible to everyone so that the professional audio and recording industries will become more gender and racially balanced' (Soundchannel, 2012a). Therefore, whilst WAM's

on-site educational programmes are tailored specifically to women and are thus self-segregated, 'all of our online training materials are [available to] everybody, not just for women' (Winston in Sharkey 2014). In addition, WAM also offers 'a collection of e-textbooks online. That reaches men and women, and it reached about 6,000 students in 105 countries last year' (Winston in Farley 2011). Here, one can observe how WAM is not only attempting to establish dedicated, self-segregated safe spaces for women to initially engage in discourse surrounding audio technology, but also reinscribe the very educational materials that so often perpetuate a hegemonic phallogocentric discourse. By giving a voice to those who deviate from the dominant genderscript, WAM is facilitating domain reinscription by allowing alternative performances to emerge that are representative of the broader accessibility that massified technological artifacts can facilitate. As I have argued previously, however, it is not only access to technology and knowledge that is impeded by a hegemonic masculine discourse, but also what we can describe as 'participant retention' in relation to marginalised groups. Discussing this issue with respect to the goals of Women's Audio Mission, Terri Winston states that:

'Mostly, what we're working on is communicating with schools: how they can attract women to their program, and then retention. It's mostly that retention is the problem, it's not actually getting them into the program ... If women, for instance, are entering a program where there's no female faculty, or there aren't a lot of women in their program, that's going to be difficult for retention. So, having materials that feature women, that are narrated by women...that gives a female presence in the classroom. That tends to keep women in the program' (Winston in Farley 2011).

By providing female representation, WAM destabilises the normative conception of an audio domain participant and thus encourages further opportunities for women in audio. More than this, it encourages participation within the 'public' audio domain as evidenced by its community focussed projects and physical presence as a recording studio that is open to everyone. This stands in contrast to the work of Wolfe (2012) discussed earlier, where an argument in favour of 'private' domain re-acquisition is instead presented.

Paula Wolfe argues that isolation within the private sphere should be considered as creating safe spaces within which women are able to exercise greater creative control, and are thus capable of domain acquisition. However, we must recognise that these isolated participants nevertheless have to conform to the

enunciative function of the domain in order to attain or perform a level of knowledge and skill deemed necessary to participate by the hegemonic masculine majority. By this, I mean that whilst isolation and solitary learning are beneficial in creating distance from problematic, often elitist, exclusive and sexist remarks and communities, these very same arenas are only empowering to the extent that they allow one time and space to ultimately conform to arbitrary preconceptions of the domain as established by other recordists. In contrast, Women's Audio Mission can be seen to challenge these preconceptions in a, partially self-segregated but nonetheless, public arena and thus subvert institutionalised discourse and practice. This is not to suggest that solitary practice is a less worthy endeavour, but rather that through its presence at mixed gender trade shows, forums and its own recording studio, WAM exists in largely public space and thus affords perceptibility to non-masculine participation in the hope of affecting normalisation.

The successes of Women's Audio Mission in this endeavour have attracted support from within the industry itself, including several prominent manufacturers and print media texts, all of whom have offered donations in some form. Terri Winston states: 'We've been extremely lucky that all of the gear in our studios has been donated by manufacturers ... we've just had amazing support' (Winston in Sharkey 2014). In another interview, she recalls: 'We've been very fortunate in that a lot of the trade magazines...Pro Sound News, Mix Magazine, Electronic Musician, Tape Op...they donate ads. So we have ad-space, like in the AES daily we were given free ad-space' (Winston in Farley 2011). Whilst the support and contributions of industry manufacturers and texts is a step in the right direction, I argue that it is only through the reinscription of the dominant audio domain discourse that greater inclusivity can be facilitated. Terri Winston has stated: 'If WAM had to go away, that would be great, I'd have no problem with that' (Winston in Buron 2013). However, as my research has demonstrated, the homogeneity of audio communities often engenders exclusivity, and whilst it may not be preferable for those oppressed participants to establish self-segregated spaces, they offer, at the very least, opportunities to challenge institutional discourse and practice. Commenting on the sustained presence of gender discrimination in the audio domain, Terri Winston states: 'It happens all the time ... but I think it happens just as much to somebody at Starbucks. It's a pervasive thing. I chose to start Women's Audio Mission to focus on the thing I knew really well, and I knew that we could change it' (Winston in Chien 2014). The sustained presence of such discrimination, no matter how slight,

is inevitably perpetuating a hegemonic masculine genderscript within the audio technology domain. Whilst manufacturers might offer support to initiatives such as Women's Audio Mission, until a thorough discursive deconstruction and undoing of masculinity can be achieved within texts such as *Sound On Sound* and *Tape Op*, equality, in a participatory sense, will be consistently undermined. Winston inadvertently draws attention to these issues in relation to women's perceptions of domain approachability, as well as the lack of physical space women occupy at industry events. She states:

'I don't know that women have embraced the fact that they are wanted in the industry. I don't know if they feel that yet. They're not all going to those conventions because female attendance is still very low. We're changing that but the more people we involve publicly in these types of events, NAMM, AES, all of them, then they feel it. Any time there is an under-represented group it's hard to be the only person in the room. So that's just going to be a slightly uphill battle, but it's changing with education. Once that's changed you'll see that move into the actual employment statistics' (Winston in Sharkey 2014).

Winston's observations point to the necessity of a deconstruction of masculinity with respect to the audio domain. Through deconstruction, masculine performances may be enacted that take up less physical space, that abstain from expressing technical knowledge as a means of asserting dominance, that perpetuate gear fetishism and ultimately, that express privilege based on outdated notions of public and private arenas. A more diverse audio domain can only be enabled if safe spaces can be established for marginalised demographics that would otherwise be rendered invisible in contemporary audio space. To conclude, then, the deconstruction of audio domain masculinity presented within this chapter serves as a starting point in this urgent endeavour.

6.6 Conclusion

Beginning with an analysis of masculinity theory from within cultural studies, this chapter has drawn attention to the significance of masculinity as a performance, or rather, many individual performances. Following this, I explored the influence of class on masculine performance, noting how gender roles such as the 'handy' male labourer and the male as 'breadwinner' were reinforced through gear fetishism. I

argued that technological artifacts were in fact rendered phallogocentric commodities in a 'masculinist signifying economy' following the work of (Butler 1990: 18). I then presented a stance against masculinity studies scholars who point to masculinity's apparent crisis and supposed 'feminisation', in particular within the audio domain (Marie Smith 2009). Finally, a detailed analysis of Women's Audio Mission was conducted in order to demonstrate the possible for the reinscription of hegemonic masculine discourse and practice. I argued, using methodologies from within SCOTS, that Women's Audio Mission renders visible community participants who are regularly and systematically marginalised and oppressed in the wider domain. By this, I mean that WAM effectively allows for its participants to occupy *public* audio technology spaces through the reprogramming of objects to facilitate behaviours and practices outside of that object's immediate script (Akrich and Latour 1992: 261). I applied this SCOTS methodology to the archive of Women's Audio Mission and showed how it achieves reinscription via the following means:

First, I argued that WAM's configuration as a non-profit organisation subverts the discursive tendency towards gear fetishism present within the audio technology domain overall. Through an emphasis on free education and relevant knowledge acquisition, WAM can be said to effectively reprogramme audio technology discourse and its exclusive features such as the stress on consumption. Second, WAM includes (thus rendering visible) and encourages the participation of gender non-binary and gender non-conforming persons who are otherwise excluded within similar audio technology communities. As Chapter Five demonstrated, *Sound On Sound* remains a largely binaristic publication, that, when challenged by those failing to identify within a binary gender system is threatened (Gilby 1999). In contrast, Women's Audio Missions' instatement of a diversity policy can be said to actively encourage those otherwise unrepresented persons to become involved in audio technology, offering safe spaces, both physically and in the form of online communities. Finally, I argued that with it's Soundchannel programme, WAM engages with the audio domain's otherwise marginalised participants, (notably women), at a young age, thus subverting the institutionally implicit biases surrounding the socialisation of women with respect to technology. In my overall analysis, I drew attention to Women's Audio Mission's capacity to realise change within *public* audio technology spaces. I demonstrated that whilst Paula Wolfe (2012) may suggest *private*, personalised recording spaces as facilitating access to technology as a result of massification, it is essential that one recognise that

massification is often understood or presented as democratisation. In the case of those who fail to enunciate using a masculine enunciative function, or present an outward performance contrary to the supposed masculine attributes outlined above, I argued they are marginalised, excluded and rendered invisible. The occupation of private spaces that Wolfe suggests is evidence of this fact. I argued instead, that, through a deconstruction of the subject, (the oppressor, the hegemonic masculinity) it becomes possible to establish opportunities for rupture. In response to this project's research questions, my overall analysis has drawn attention to the deceptive notion of democratisation when articulated as a component of discourse but also exposed opportunities for reinscription within specific communities and through specific practices.

Chapter Seven: Conclusion

Within this concluding section of the thesis, I outline my original contributions to knowledge in relation to a number of relevant academic fields of inquiry, whilst offering summaries of the responses to my initial research questions, as detailed in Chapter One. In addition, I also imagine possibilities for future research based on the work conducted thus far. By expanding upon the methodologies and findings outlined within this thesis, I suggest a number of specific research areas and, in particular, contemporary audio technology communities, an examination of which would allow future researchers to further contribute to an identifiable gap in the existing knowledge base. This gap is, I contend, rooted in a fundamental lack of engagement with gear fetishism as a discrete research topic, and in particular, its connections with socially constructed perceptions of gender identity and performances of masculinity that have historically informed audio technology's continued development as a series of material artifacts, labour practices, and community discourses. Thus, whilst contemporary researchers such as Jonathan Sterne have imagined interdisciplinary research avenues like sound studies that draw upon a number of disparate, albeit thematically concordant, arenas (as does my own work), a fitting study in relation to the concepts of masculinity and gear fetishism has yet to be fully realised.

The most relevant attempts at filling this gap in knowledge have been the informative studies conducted by Tomaz de Carvalho (2012), Rodgers (2010a), Marie Smith (2009) and Heward (2009). The research undertaken by these scholars is among the first to definitively focus upon the exclusive potential of audio technology discourse and practice, in tandem with interdisciplinary understandings of gender studies and discourse analysis, as well as the production, mediation and regulation of power and knowledge structures that typify recordist interactions within the wider audio domain. This is not to understate the significance or relevance of other related studies, in particular those concerned with gender and the exclusion of women from the audio sector, but rather that the aforementioned texts point to both the *symptoms* as well as the *causes* of participant exclusion.

This thesis extended the research model adopted by these notable scholars, and fixed a line of inquiry concerned with exclusive causality by examining the mutual co-construction of gear fetishism and hegemonic masculinities as dominant discursive tropes. I argued that these features of discourse, in both their historical

and contemporary configurations, rely/relied upon one another for their collective perpetuation as a consequence of striated, often hierarchical, models of communication (in contrast to the rhizomatic) and a necessary, phallogocentric means of enunciation that scripts the means of community discourse formation and the mediation of its subjects and objects respectively. In contrast to the arguments put forth by relevant scholars within associated fields, I suggested a discursive de-inscription of hegemonic masculinities from the audio domain rather than a reinscription of marginalised or objectified participants in order to facilitate inclusivity. This is to suggest that whilst studies conducted by Wolfe (2012) and Marie Smith (2009) point to the exclusion of women (as an example of a masculine-deviant gender performance) and consider alternative means of *integration*, my own study serves as an original contribution to knowledge by deconstructing the rules of engagement that facilitate masculine dominance, in order to imagine the discursive de-inscription, or *removal*, of phallogocentric masculinity from the audio domain, thus creating material and discursive spaces for alternative gender performances to flourish.

It is important to recognise here that this is not just a subversion of methodological principle and approach, but rather, a fundamental distinction concerning subject and object dichotomies. Through the application of relevant theory, notably Foucault concerning power dynamics (1997) and Nussbaum's theory of objectification (1995), I asserted that subjects are substantiated and refreshed by objects. Thus, objects intrinsically lack power and agency and are incapable of functioning in isolation. In deconstructing masculinity (and the phallogocentric subject), I exposed opportunities outside of this simplistic, binaristic system of signification, notably the work of WAM. Rather than the replacement of the subject, the reinstatement of the object or the reversal of this hierarchy, an approach of *discursive de-inscription* epitomised by their educational materials works towards the rupture of this system.

A growing awareness of the importance of studies such as that of Marie Smith (2009) and Tomaz de Carvalho (2012) as well as my own, is evidenced by the recent *Manifesto For Music Technologists* (Baym 2014) that explicitly addresses concerns of gear fetishism and male dominance in the audio technology domain. The manifesto offers the opportunity for recordists to express their support for alternative material and discursive practices in a collective attempt to effectively reinscribe perceptions and realities of audio domain participation. The contemporary

relevance of my own study as a response to the identification of exclusive, and arguably harmful, discursive tropes is thus borne out by the signatories of groundbreaking initiatives such as this.

7.1 Responding to the Research Questions

Throughout the thesis, I have considered several interconnected research questions, all of which relate to the aforementioned issues of domain accessibility and exclusivity. Through their resolution, this project contributes to a growing body of interdisciplinary research concerned with gendered participation in the audio technology domain and the implications for recordists and associated practitioners. The research conducted was fundamentally interdisciplinary in nature, partially due to the varied nature of sources surveyed (sound studies, popular music studies, social construction of technology studies, postmodernism and the Art of Record Production), but also out of necessity, in order to facilitate a critique of the hegemonic subject. By this, I mean to suggest that a cohesive understanding of audio technology discourse is only made possible by deconstructing the texts as prescribed by the domain and its dominant subjects. In doing so, the enunciative function is revealed and the mediation of power and agency brought into question. This is made possible only by the application of texts outside of the 'subject' or discipline being assessed. As a consequence, the research findings presented below are equally valid within the fields drawn upon, providing new academic material upon which to structure further studies, as discussed in section 7.2.

The central research question of the thesis brought under scrutiny the common (mis)perception of audio technology as a force of 'democratisation'. I asked the question: 'Which mechanisms, either discursive or material, facilitate the maintenance of masculine privilege within the audio domain, despite the implications of 'democratising' technologies?'. My response focussed on questioning a large body of academic literature (Tomaz De Carvalho 2012; Barber 2012; Heward 2009; Homer 2009; Théberge 2001, 1997) that cites a series of interconnected technological developments as promoting, or at the very least facilitating, a more 'democratic' audio technology domain through miniaturisation, mass production, 'global' availability and a reduction in price point. I presented a nuanced counterargument to this widely accepted notion, by examining the lack of

democratised skill sets and the largely homogenous and unchanging demographic of the audio technology domain.

In particular, I rendered visible a number of discursive and material mechanisms that privilege perceived masculine gender performances through the interdependence of the subject and object. The theoretical lens of phallogocentrism as an economy of masculine signification was deployed in order to demonstrate the perpetual commodification of discourse participants for the existence of the subject (the privileged recordist) within the dichotomous, striated and oftentimes hierarchical organisation of the audio domain. I showed how recordists that are perceived as masculine, are able to maintain their privileged position by functioning as gatekeepers, outlining a standardised system of signification and enunciation that privileges the gender performances and knowledge of a favoured minority. The primary mechanisms facilitating masculine dominance were identified as being intrinsically linked to articulations of technical knowledge and competence, as well as the practice of gear fetishism. Whilst an exhaustive consideration of every exclusive facet is beyond the scope of this final segment, the aforementioned features serve as examples of this project's contribution to a gap in subject knowledge.

In critiquing the notion of democratisation, it is essential to recognise that its enunciation is often dependent on the notion of consumption, over and above equal access to what is perceived as requisite domain knowledge. On this point, my research has provided evidence in support of exclusive material and discursive practices that wield knowledge as a means of participant objectification. Thus, the 'democratic' potential of audio technology is perpetually undermined, as participants are unable to navigate the discursive barriers to participation through the correct application of the enunciative function. This effectively renders the term redundant. In its place, I suggested the more suitable term 'massification' in order to refocus attention towards contemporary academic perceptions of accessibility rooted in economic power and consumption.

The second research question of this project looked to respond to the contemporary configuration of the audio technology domain as a predominantly masculine space. I enquired: 'How have masculine gender performances arrived at their current, privileged position within the audio technology domain?'. In responding to this question, I examined the historical development of audio technology discourse beginning with 19th century conceptions of public and private spheres. I

showed how a public/private divide was implicitly gendered, establishing dichotomous perceptions of material artifacts and discourses that characterised masculine/feminine interests as high/mass cultures respectively, resulting in gendered perceptions of labour suitability that stressed 'masculine' features of scientific understanding and rationality in opposition to the supposed 'feminine' values of mass culture consumption and technophobia. Drawing on the concept of genderscript, I traced the evolutionary trajectory of the phonograph as both a mass culture reproduction technology, as well as a technological artifact. I asserted that mass culture devices were effectively reappropriated and reinscribed as masculine objects within this simplistic gender dichotomy, in order to facilitate forms of masculine participation that reconciled with contemporary perceptions of the public and private sphere. I further argued that these performances have been materially and discursively inscribed into the present, through their continued, and often unquestioned, practice and enunciation.

The third and final research question was also concerned with the concept of democratisation. I asked: 'What role do industry print media texts play in promoting or challenging the democratic potential of audio technologies?'. I suggested that print media texts promote a 'fear of failure', in that participant enunciations and practices are scrutinised for lapses of conformity to a hegemonic masculine performance and a correct application of the enunciative function. Through archival analysis of both *Tape Op* and *Sound On Sound* magazine, instances of hegemonic masculine performances, gear fetishism and the privileging of technical knowledge were analysed through the application of Foucauldian discourse analysis, as well as theories from a series of pertinent research areas. In particular, theories of genderscript and phallogocentrism were applied in order to assess the structural compositions of the texts themselves, their democratic potential, as well as the language articulated in the discussion of audio artifacts and associated labour practices.

In assessing specific archival examples of print media discourse, this study focussed primarily on literature produced alongside the emergence of 'democratic' digital audio artifacts (including the Digital Audio Workstation) from the late 1990s to early 2000s. This enabled an analysis of intersecting factors such as class, gender and wealth, perceptions of which I have shown as feeding into contemporary notions of authority and power and thus, as dictating the relative participatory potential of recordists within specialist audio communities. I have shown the

rhizomatic-like structural composition of *Tape Op* to promote the democratic potential of audio tools by emphasising creativity and technical understanding over material assets. In particular, readers' letters allow for constructive feedback concerning the perceived wealth bracket of the target audience, and establish a form of peer review. In contrast, an analysis of *Sound On Sound* revealed a hierarchically organised and seemingly didactic model of community interaction that undermined the notion of democratisation through the inscription gear fetishism. I determined that 'democratisation' is both promoted and challenged within audio technology print media, however the archives surveyed largely favoured an emphasis upon 'accessibility' resulting from digital miniaturisation, software proliferation and participants' economic power. The significance of hegemonic masculinities as a cause of exclusion based on perceived gender identity was not represented as a component of discourse, or necessarily presented by community participants as being detrimental.

7.2 Future Research

In considering the timeliness, or contemporary relevance of this study, it is important to note that whilst the audio technology domain has undergone dramatic technological advances, its discourse remains firmly rooted in antiquated 19th century stereotypes. Thus, whilst the discursive examples presented here are taken from print media texts dating back to the 1990s, the application of theoretical frameworks presented within this thesis remain relevant to a contemporary analysis of the audio technology sector. An extended critique of audio technology discourse in relation to contemporary modes of communication would therefore serve as a useful extension of my work, bringing into scrutiny a number of 'archives' in the Foucauldian sense, in order to interpret their relative inclusive or exclusive potential. In particular, the ascendance of forums, message boards and social networking websites have provided researchers with ample fodder for investigation. Pertaining to the research topics I have sought to address, the archive of online fora such as 'Gearslut' (see Bennett 2012c) would serve as a natural progression, in particular due to the localised forms of enunciation specific to these communities on issues of gear fetishism and gendered divisions of labour.

In response to this study's discursive deconstruction of the hegemonic masculine subject, further research might also address the creation of spaces for

other presently marginalised audio technology domain participants. Exclusivity within the context of this work has focussed on the subject within dichotomous forums as a means of exploring power and agency. Existing studies concerned with the object have so far detailed the exclusion of women and non-conforming gender identities, however there still exist very few studies sensitive to ethnicity. The audio technology domain remains a white-middle-class-male territory and thus there would be considerable value in a deeper analysis of causality with respect to ethnicity. Further contributions to knowledge might also be enabled therefore by a detailed examination of racism within the audio domain, as interview-based material such as that of Rodgers (2010a) have alluded to its significance, in particular with respect to intersectionality (Crenshaw 1989).

As evidenced by the future research potential within the context of audio technology, my study offers only partial responses to the needs of this arena. However, the contributions made by this study are nonetheless significant in charting the contemporary configuration of the audio technology domain as an exclusive and potentially oppressive space in need of rupture.

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Appendix A: Exchange with Larry Crane, *Tape Op* editor. Conducted by Alex Annetts [email].

On 14 Jun 2013 6:48, Alex Annetts wrote:

Dear Larry,

I am currently assembling a book that investigates gender discrepancy within the audio technology community, as well as the wider issues surrounding this. As a component of my research I have been performing comparative analyses of various printed publications that engage with issues of accessibility to the audio community.

Tape Op has, and continues to be, a fantastic source of information with regards to these issues and has proved immensely helpful to me. Additionally, it remains the most inclusive and horizontal resource available, ensuring that readers, regardless of their demographic have access to practical information that allows them to participate in the audio community. This is aided, no doubt, by the subscription model you have chosen.

If it is at all possible, I would be grateful if you could provide me with some additional information regarding the magazine and its subscribers. Firstly, I would interested to know the average subscription numbers, as well as the demographic of the readership, including, age, gender, nationality etc. In addition, if you would be available to discuss some of the finer points of my work I would be very interested to talk with you in an informal interview setting, e.g via email correspondence or through Skype.

Thank you for taking the time to read through this message. I look forward to hearing from you.

Sincerely,

Alex Annetts

On 26 June 2013 15:20, Larry Crane wrote:

sure

when? I could maybe do July 5 or 6.

stats will be emailed by my data guy Dave

We don't collect info on race and nationality is difficult because of how we send those mags out.

I think we have 45,000 readers.

On 28 Jun 2013 7:34, Alex Annetts wrote:

Hi Larry,

If you would like to talk over Skype, I can do the 5th July. I will be in Germany so we would have to arrange a convenient time for us both.

Alternatively, I can send you some questions in a couple of days via email and you can take as much time as you like to respond to these.

Let me which suits you better.

I have received the info from Dave. Thanks so much for taking the time to respond.

Alex

On 28 June 2013 at 17:56, Larry Crane wrote:

Do you stay up late? Would 11 pm your time/1 pm my time work? It's July 4th the day before and I know we have late night plans!

On 28 June 2013 17:58, Larry Crane wrote:

Actually, I'd really like to do email questions. This is such a sensitive subject and I really want to make sure I think these answers through and don't state opinions as facts.

On 28 June 2013 20:05, Alex Annetts wrote:

Hi Larry,

Thanks for the quick response. I will email you some questions within the next few days but take as long as you'd like to reply. I'm really interested in hearing your opinions on the subject.

Thanks again,

Alex

On 28 June 2013 20:32, Larry Crane wrote:

Thanks

On 2 July 2013 16:17, Alex Annetts wrote:

Hi Larry,

Thanks again for taking the time to look through and respond to these questions. If you would like me to clarify anything, then please get in touch as I want to be sure that you're confident when answering.

1. When starting Tape Op, what did you want to achieve and/or do differently and did you do so in reaction to the audio technology press that was being circulated at that time?

2. One of the key themes of my book is investigating the way in which a discourse on audio production technology both influences, and is influenced by the user. For example, the operating principles of a specific piece of equipment have been

constructed and established by an engineer to serve a specific function/s. Another user of this technology will then work in reaction to the principles and guidelines outlined by the creator. I don't mean to suggest here that one cannot be creative in the use of technology because of its origin, but rather that users always work in reaction to a given technology. To what extent do you think Tape Op reflects this kind of push-pull relationship relationship? As the editor, have you been witness to people's attitudes in print reflecting this relationship toward technology?

3. As a part of my research I have also been looking into the ways in which the audio community press functions in relation to the fetishization of technology. For example, some magazines have reacted by essentially becoming a series of adverts and reviews for technology with very limited discussions as to its application, be it practical or theoretical. In what way/s do you think Tape Op functions in this capacity, or not, and how have you constructed Tape Op in relation to fetishization?

4. Tape Op seems to facilitate interaction within the community by acting as a mediator in certain respects. It allows people to engage in actual debates and discussion through the letters section instead of of the traditional Q&A style section that is present in other publications. I have seen people writing in making corrections to technical details as well as having very open discussions as to the progress/future of the magazine, particular in earlier issues. I have also seen answers to particular queries being responded to by industry "celebrities" as it were, such as Steve Albini. Did you consciously structure the magazine in a way so as to facilitate a discussion within the wider community?

5. What was the thought process behind the editorial and organizational nature of the letters section, did you consciously leave it as an open space?

6. As I have mentioned to you in my previous emails, I am very interested in issues surrounding gender discrimination within the audio technology community. Having looked through Tape Op, it has become quite clear to me that very early on in the magazine's publication this was an issue that you drew attention to and incited discussion into. How do you feel Tape Op has contributed to the dialogue on gender within the audio technology community, either intentionally and unintentionally?

7. Additionally, over the course of Tape Op's publication, how have you seen the issue of gender discrimination develop or change, in particular with regards to how it is discussed inside the audio technology community.

8. Another recurring theme I have observed when analysing audio technology print media discourse has been the rather competitive nature of communication between users. Again I would draw attention to the letters section of Tape Op. It seems that many users compete with one another in terms of their respective knowledge pools. For example, in the discussion of superior/inferior equipment. Given your experience within the industry and as editor of the magazine, would you say this is an attitude you have been consciously aware of? Where have you experienced this?

9. Within your work as an audio engineer, how far has your involvement in Tape Op influenced your approach to production and your everyday practices?

Thank you so much for taking the time to respond to these Larry, take as much time as you like, I understand that you're very busy. If you would like me to clarify anything please let me know.

All the best,

Alex

On 3 July 2013 04:57, Larry Crane wrote:

I had a hard time with some of this. I'm not a deep thinker and it's really been a lot more seat-of-the-pants in my life. Come up with a half decent idea and work really hard is my agenda. If you want to send me shorter, simpler questions on specific things that's cool. But here's what I got done...

1. In 1996 I was studying as much as I could about recording. When I picked up the other music recording magazines I felt like they never wrote about creating the music I enjoyed, and that their aim seemed to be to get the readers to desire new

recording products as opposed to inspiring people to record and to be creative. Some seemed to be orientated towards middle aged male hobbyists, and they still appear that way to me. I just wanted to do something different that related to my situation. And I'm still learning!

2. I'm kinda confused about this question. If you mean "use something as it was not intended", well, of course we all do that! On another front, sometimes these people build stuff that is just fairly useless. Either it sounds pretty bad, is easy to make sound bad, costs way too much, is too complex, or is not user friendly enough. But those products

3. In relation to recording equipment, I seek to tell the readers about tools that can help them be creative. There is a lot of great gear out there. I get pretty bored by the talk about recording equipment though. I like music, and I like being creative, so to me it's all about having tools to help you get the job done. I once had an asshole tell me "You can't make a great record on that console," when I'd told him what I had at my studio at the time. All of his gear was top of the line vintage and all was in storage. Obviously no great records were being made on his gear...

4. I am making this all up as I go along, but yeah, I did have an active letters section by issue number 2. It's been slimmer lately, as most people use the internet for instant gratification instead of waiting for 2 months to read a reply! It's nice to see vetted responses in lieu of the ragtag mess that most online forums end up being.

5. Damn, that just implies too much planning and thought. I really just churn out an issue when the edit is due and the letters section kinda grew for a while. We had more pages then and it was a fun way to fill them. You really have to understand that I am a very seriously hard working guy, but I am not a very serious person! Doing Tape Op is fun, and opens doors to meeting cool people and such.

6. I don't recall inciting discussion on the gender gap in the recording world. Did I? We wanted to be inclusive of people that felt recording was a middle-aged boys' club that they had no place in. I try and find articles that buck the overwhelming "white male" trend when I can. But in the end it's all about the art being made...

7. I'm not sure it's changed. I wish. We've actually refused certain advertsing that we felt was objectifying women, but at the time we made no stir about it and moved on. At least if you say "No" once then they might not send another ad like that your way. We've laid pretty low on that, as there didn't seem to be a need to humiliate the advertsiers or publicity firms involved.

When you go to trade shows and manufacturers tell you where the hot "booth Betties" are then you know it's still all fucked. I don't discriminate in any way in my life or in the studio. Every good studio rat knows that musicians and recordists come in all sizes, genders and colors, so there's no point in thinking othewrwise. I've trained a number of women to record. My studio manager is a woman and she's also an amazing engineer and producer.

8. I'm not a competitive person by nature so that kinda stuff just rolls off my back. People that have the time to tell other people that their techniques or gear sucks are obviously not spending enough time making great recordings. I'm convinced that 99% of the folks discussing recording and gear on forums are not actually making music.

9. I started Tape Op to learn more about the art of recording. The things I've learned are wide reaching, but the most important things I've learned are very hard to verbalize or discsuss. There are many subtle things going on when making an album, and I think I've learned some of that stuff that's made me a much better engineer and producer.

On 3 July 2013 09:41, Alex Annetts wrote:

Hi Larry,

This is great, sorry if some of the questions were quite broad, I just wanted to give you some space to talk freely. I totally agree that at the end of the day, its all about the music being made.

Thanks a lot for filling all this out and taking the time to talk with me.

Alex

On 3 July 2013 17:33, Larry Crane wrote:

If you have any more questions I'll try!

On 16 February 2015 13:44, Alex Annetts wrote:

Hi Larry,

It's been awhile since we last spoke but I wanted to thank you again for all your help.

I also wondered whether you could clear up something for me regarding the earlier issues of *Tape Op*, specifically numbers 1-10.

Is there anything that prevents further print republication of these issues? I have been trying to access them through a local archive but can't seem to find them. The *Tape Op* site also doesn't have them and I was curious why. I noticed that certain items have been republished in the first compilation book, but I was hoping to get my hands on original copies for reference.

All the best,

Alex

On 16 February 2015 19:53, Larry Crane wrote:

Those issues were published before my partner John came aboard. I then sold the rights to Feral House to do a book of 1-10. We recently bought the rights back but need to reprint the book and scan the old issues as the layout was by me on paper. Plus some covers need to be resourced from old digital files.

Appendix B: Exchange with Dave Middleton, *Tape Op* web developer. Conducted by Alex Annetts [email].

On 27 June 2013 04:22, Dave Middleton wrote:

Hi Alex,

Tape Op currently has a gender split of 96% male to 4% female, with an average age of 37 years old.

Please let me know if you need additional information.

Thanks!

On 28 June 2013 15:36, Alex Annetts wrote:

Hi Dave,

Thanks so much for this information and for replying so quickly.

All the best,

Alex

On 30 June 2013 15:53, Alex Annetts wrote:

Hi Dave,

Just a quick question: Larry mentioned that the magazine had roughly 45,000 subscribers. Could you let me know if this is accurate? Also do you have any statistics relating to the ipad subscription model?

Thanks again,

Alex

On 30 June 2013 19:32, Dave Middleton wrote:

We have about 3000 iPad subscribers, but that is included in the 45K total. In the US we have about 35K total, and then 10K in the UK and EU. For logistical reasons we had to stop print delivery to our UK/EU and are trying to figure out a different delivery model. So, until that time 35K total is technically more accurate.

Thanks!

Dave

On 1 July 2013 13:10, Alex Annetts wrote:

That's great, thanks so much for getting back to me.

Alex

Appendix C: Exchange with Paul White, *Sound On Sound* editor in chief.
Conducted by Alex Annetts [email].

On 10 December 2013 10:05, Alex Annetts wrote:

Dear Paul,

I am currently assembling a book that investigates gender discrimination and the presence of gear fetishism within the audio technology community, as well as the wider issues surrounding this. As a component of my research I have been performing comparative analyses of various printed publications that engage with issues of accessibility to the audio community.

Sound On Sound continues to be a fantastic source of information for those interested in audio technology and I will therefore be taking a detailed look into its construction with regards to the topics outlined above.

If it is at all possible, I would be grateful if you could provide me with some additional information regarding the magazine and its subscribers. I would be interested to know the average subscription numbers, as well as the demographic of the readership, including, age, gender, nationality etc. In addition, if you would be available to discuss some of the finer points of my book I would be very interested to talk with you in an informal interview setting, e.g via email.

Thank you for taking the time to read through this message. I look forward to hearing from you.

Sincerely,

Alex Annetts

On 10 December 2013 10:27, Paul White wrote:

Hi Alex,

I can pass this on to our directors who may be able to provide you with some of the information you need though I'm pretty sure what we have is rather more limited than you are asking for, especially as most copies are sold via the bookstores. I can say that the percentage of female readers on our subscription list is quite low and from the many college visits I've made it seems that far fewer women seem interested in the actual mechanics of the recording process than men — which is a shame as multi-tasking is a big part of working in a studio and something women tend to be better at than men. As for gear fetishism — that's what keep the industry running. In most cases it is what goes into the recording system that is at fault — and how it is handled afterwards — the gear itself is rarely the weak link in the chain.

Paul

On 10 December 2013 12:43, Alex Annetts wrote:

Hi Paul,

Thanks for getting back to me. Any info on demographics/rough readership or subscription numbers would be great, although of course I understand how most of the sales are made. I also wanted to clarify how I am discussing gear fetishism. My book looks at how differing publications interact with new products that come to market, e.g by testing, reviewing or perhaps simply discussing it in the context of a recording or mixing session. As you've pointed out, equipment is what keeps the industry running. Do you think this is also the case for magazines related to the field? Does SOS rely on equipment coverage in order to keep numbers up, or do you think it would have the same success without this focus?

Thanks again for your help.

Alex

On 10 December 13:54, Paul White wrote:

Hi Alex,

Certainly product reviews are an important part of any specialist magazine's content as it is something the reader's want and rely on, though we also cover lots of other areas to achieve an editorial balance. I don't think it would be practical to run a magazine like ours without product reviews, especially as we have a reputation for depth and accuracy. For any other details you'll need to contact our editorial director Dave Lockwood dave.lockwood@soundonsound.com.

All the best,

Paul

Appendix D: Cover of Tape Op Magazine, Issue 22. Image sourced was of the highest resolution available.

